the American Perfumer and ESSENTIAL OIL REVIEW

COSMETICS · SOAPS · FLAVORS

EST. 1906

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Editorial Comment

Keeping Quality Up

The Office of Price Administration has been on the receiving end of many dead cats. Some of the principal cat throwers have been groups of people who would like to see prices rise for selfish reasons, others have been well meaning in their intentions. It goes without saying that the OPA has made mistakes. Any organization of its kind would have, but the mistakes have been in exercitation mostly, let us say—in application. This price absorption policy is not universally approved but, taken as a whole, OPA efforts have been helpful in purpose, the avoidance of inflation.

This is all very well for the country as a whole, but the manufacturer with prices on products frozen, has been confronted with rising labor and material costs. As a result of being placed between an inflexible ceiling and a moving cost base, profits resulting from business operations have often approached the vanishing point.

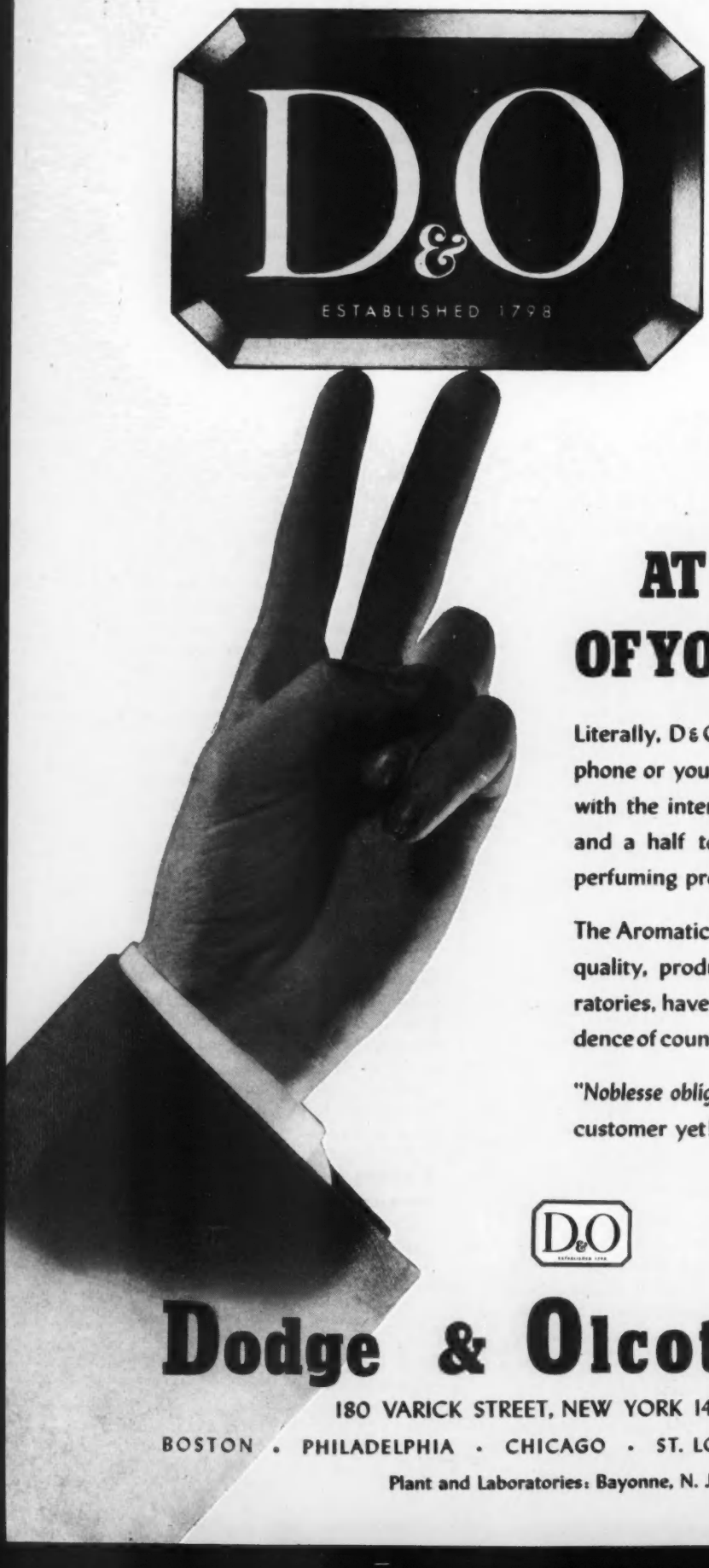
Manufacturers in some fields have found a way out of this dilemma by turning out merchandise which is downright shoddy. Cheap material, cheaply processed, can be foisted upon a merchandise hungry public. Unfortunately most of us have had experience along this line in having bought inferior products.

The quality of cosmetics manufactured in this country is universally high. It is important that it be kept high. This is especially true abroad. Merchandise turned out for export is going to face competition built on high standards. To keep and expand foreign markets we will have to maintain quality.

Returning Veterans

Those who have not read the Selective Service Act are advised to do so for their own enlightenment.

As it is estimated that two out of three returning veterans will seek out their old place of employment, the time for getting ready for their return is short.



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Desiderata

by MAISON G. DeNAVARRE

M. G. DeNavarre at work in his laboratory

HOLLYWOOD NOTES

Anyone who doesn't think this is the make-up center of the world just isn't hep! From the movie-sets to the people on them. . . . It's all a business of "giving the appearance of beauty" although some of the stars need little embellishment; they are naturally gorgeous . . . and some quite gracious, too.

If it wasn't a matter of distances, Hollywood could also possibly be the cosmetic center of the world. And don't think they're not working like beavers to make it that, too. The people who make the stuff that "gives the appearance of beauty" are really equipped. Any cosmetic chemist would be proud and happy to dabble in the work. This is possibly the only place in the world where the chemists pay the boss to work for him . . . at least that is the way they should do it. This stuff isn't work anymore than a date with Betty Grable or Lana Turner.

The bottleneck is supplies. Practically everything comes from the East. There are raw material opportunities here galore. Closures and containers, too. Even petrolatum.

And the officials of the different companies . . . all swell guys. "Salt of the earth" kind of people, from the largest to the smallest. They really back up their trade organization, a meeting of which I attended.

As for the people, the younger ones are movie star crazy, just as they are anywhere in the world. But there are plenty of old timers living here in the land of continuous sunshine, clean air, no mosquitoes or flies and lots of fresh fruits and vegetables. Many people are coming out here in California to settle after the war. Los Angeles has a lot of room for expansion. And with the expansion will come an expanding cosmetic industry. The boys are preparing for it, too.

People often say that in California everything is bigger and better. That is pretty close to right. Plenty of good Universities turning out high class students. The make-up makers and designers . . . the best of them are right here, too. The best clothes designers are here with the studios. With the tie-in between make-up and clothes that the cosmetic industry has made in its most recent advertising slants, one can see the way things are lining up here in the Movie capital.

INSECT REPELLENT

At last a quantity of insect repellent worthy of the name is now available to interested companies. It is the material conveniently abbreviated to BMOO (butyl-mesityl-oxide-oxalate). Use it in alcoholic solution or as an emulsion.

PENICILLIN IN COSMETICS

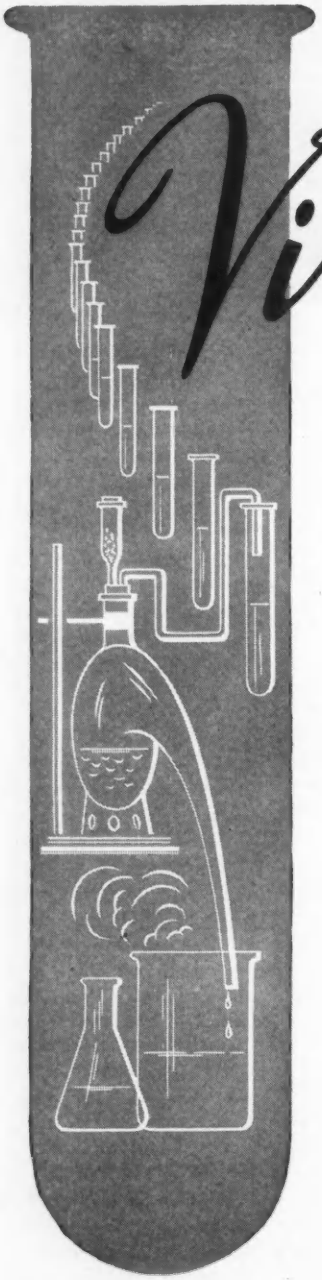
A number of people have written me regarding the possibilities of incorporating penicillin in cosmetic creams, lipstick, etc. Unfortunately, at this stage of the knowledge of penicillin, there is no known method of stabilizing it for use in products stored at room temperature over long periods of time. Even when kept in an ice box, an emulsion of cream-like consistency made with penicillin loses potency slowly, and its practical shelf life is about six to eight months. Water free combinations allow the penicillin to retain its potency longer. There is some indication that the purer the penicillin, the longer its stability. Perhaps a special derivative such as the calcium salt may be more stable in creams. But most penicillin sold contains traces of the media in which it was produced, and apparently these traces unfavorably affect its stability. Perhaps when a purer form, or even a synthetic form is made, the stability all around will be greater. At that time it may be a useful addition to cosmetics, for everyone knows that keeping cosmetics sterile throughout the life of the product is indeed a long step in the direction towards better hygiene.

Cosmetics containing ingredients maintaining a "germ-free" product have been on the market for some time. A powerful inhibiting agent of one kind or other is used to keep them that way. Penicillin is the most powerful inhibitor of bacterial life known today. Keep your eyes on it. The material isn't quite adaptable yet, but it may be some day not far from now.

CREAM SHAMPOO

More and more people ask about the use of sulfated fatty alcohols in cream shampoo. This is a good place to set the situation straight. Two major suppliers control manufacture and end use through a system of patents. The one supplier of the material in paste (or cream-like form) is restricted to sell the product for certain end uses not including shampoo. The other supplier has all soap and similar uses tied up by patents. So if

PACKAGING CORROSIVE FORMULAS?



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you get the material by subterfuge—and some are getting it—you are still *estopped* from using it for shampoo purposes by the patent situation. Topping all this is the tight supply. So, if you want to experiment with cream shampoo, try some other wetting agent than a sulfated fatty alcohol. You may not get all the foam you'd like, but that is the best you can get in war time.

I doubt if cream shampoos are a fad as some think. They are here to stay. It is one way to use a poorly soluble wetting agent . . . by making it into a paste of say 25 to 35 per cent concentration of active ingredient, the balance consisting of fillers and solidifying agents.

DRUG OR COSMETIC

One wonders if it was the intent of Congress, when it passed the Food, Drug and Cosmetic Act of 1938 to have this act classify products in more than one type to enable the Treasury Department to collect the tax on a cosmetic, at the same time allowing the Food and Drug Administration to classify the product first as a drug because it altered the structure or function of the body and second because it was normally sold through toiletries channels. I DOUBT IT.

Thus in the case of an antiperspirant, the Treasury Department takes its cut. The F.D.A. demands the product be labeled both as a drug and cosmetic. And yet it cannot be *both* drug and cosmetic. It must be one or the other.

The F.D.A. has taken the opportunity to promulgate interpretations and regulations under the Act on different occasions. Certainly, they should classify all products as cosmetics, so long as the Treasury Department collects a cosmetic tax on them. An interpretation along this line would clear the air.

One recalls the time when the F.D.A. arbitrarily classified sun protective products as drugs, then upon reconsideration of the facts, decided they were cosmetics. In other words, there is precedence for a reversal of opinion. The opportunity to manifest another reversal has been here for seven years.

Consistency between the F.D.A., the Treasury Department and the F.T.C. are one of the most urgent things on the program for better cooperation, greater truth in advertising and for better and safer products for the consumer. If the regulatory agencies cannot agree on fundamentals such as classifications of a product, how can any industry plan a program based on these fundamentals? Why wait until a Congressional Committee has to investigate these bad practices. Let these agencies clean their own house by their own volition.

QUESTIONS AND ANSWERS

555. NAIL POLISH DRYER

Q: *We have been experimenting with a nail polish dryer using different combinations of olive and castor oil in alcohol, but cannot get it to dry fast enough. In addition the odor is off. Can you suggest proper ratio or a better formula?*

A. W. B.—INDIANA

A: For your information, U. S. Patent #2,366,260 covers a preparation for drying nail polish, consisting of 24 parts of olive oil, 1 part of castor oil and 2 parts of denatured alcohol. From this you will see that you will be infringing on the patent by using a product of this type.

556. DEPILATORY POWDER

Q: *We have been making a barium sulfide depilatory powder for many years. It works well, but our customers object to the odor. We have been unable to eliminate this objection. We will appreciate a formula for a depilatory that will have the same quick action, but without the objectionable odor.* M. A. C.—NEW YORK.

A: Who wouldn't? Some companies have spent thousands of dollars in search of such a preparation. The successful products are all patented. Calcium thioglycollate is reported to be an effective depilating agent when properly formulated, but it is covered by more than one patent. A calcium thioglycollate depilatory powder in bulk is being sold by one company, and we give you the name of it under separate cover. Otherwise, you had better experiment further with perfumes, and we suggest that you try different types of rose bouquets which you will find are especially suited for depilatories.

557. BRUSHLESS SHAVING CREAM

Q: *We are making a brushless shaving cream in which we would like to add the colloidal silicate mentioned in Desiderata for March, 1945, to reduce the stearic acid. Will you please tell us which one to use and also recommend a method of making the cream wash out easier?*

H. C.—MAINE

A: The name of the supplier of the particular colloidal silicate goes to you under separate cover. The best way to work this material in is to mix, say 75 parts of your regular formula with 25 parts of the colloidal silicate and pour or pack as you ordinarily would. The silicate will tend to make washing out easier, but another method used to achieve this goal is to add a wetting agent or to increase the soap content. If you are using sodium soaps, replace part of them with potash and you will get better washing out.

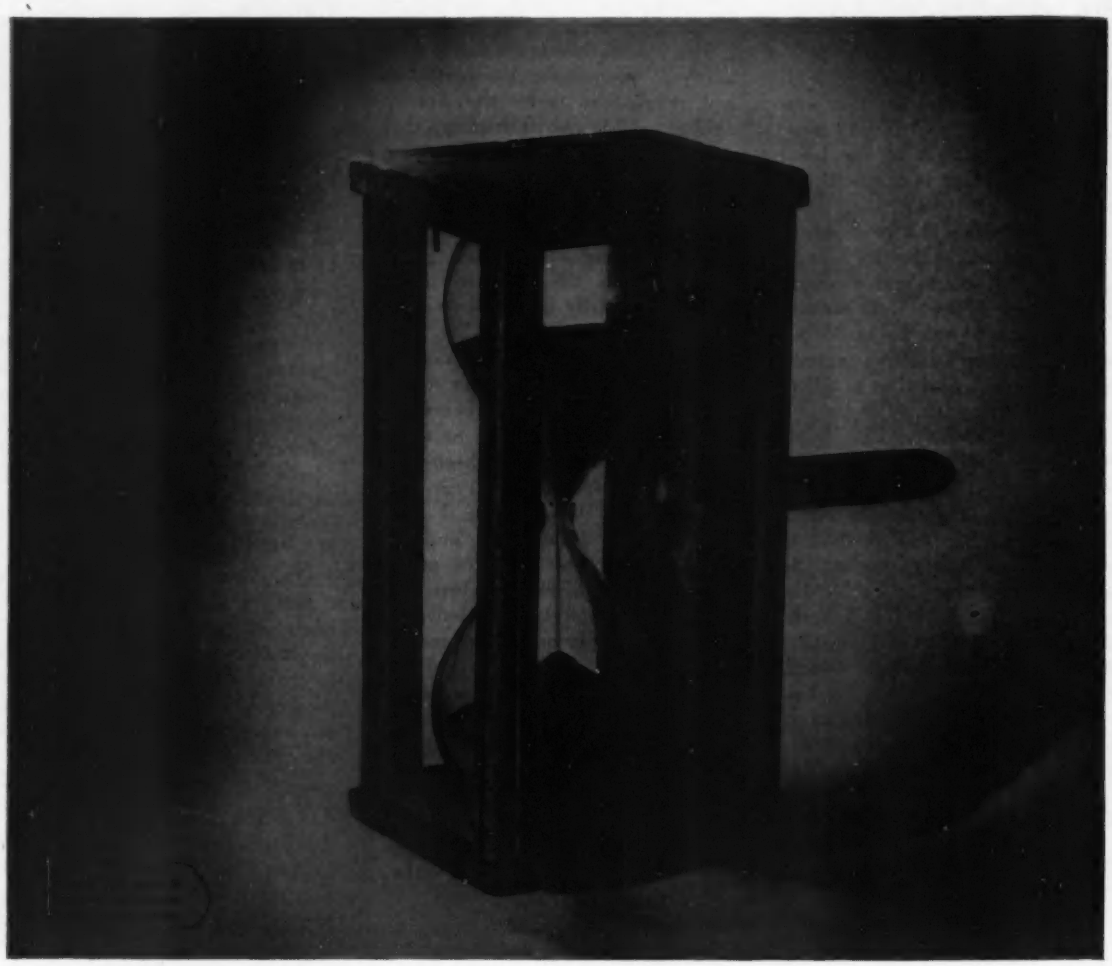
558. PHENYL MERCURIC BENZOATE

Q: *Can you suggest an oil soluble relatively non-toxic antiseptic of high phenol coefficient for use in an ointment? At present we are using orthohydroxyphenylmercuric chloride but are not entirely satisfied with it.*

O. H. A.—TENNESSEE

A: We would suggest phenyl mercuric benzoate in place of the compound you are using because it has a good history behind it and because of its high bacteriostatic properties. The material is freely soluble in oils.

LOST MINUTES



THE LOST MINUTES . . . the hours . . . the days . . . the years, that have measured an era of destruction and of human suffering without parallel, are over—at least in half of the world. And it is the earnest prayer of all Mankind that they may never be refound.

Now there are other minutes which the world *cannot* afford to lose—those precious minutes which will hasten the return of a normal, happy way of living.

And in hastening the return of the day when women can once again fulfill their desire for fine cosmetics and toiletries, no time should be wasted. Plans which you have been formulating for post-war days *must* be put into effect *at once!*

So that no lost minutes may be experienced by old and new friends, Allied has instituted a new and timely service. This is the Allied Research Laboratory, whose findings may help overcome much costly and time-consuming experimental work.

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Ancient Techniques in Eye Make-up Still Exist

Eye creams and eye oils should be light in texture . . . Lanolin creams tend to be rather heavy . . . The avoidance of dermatitis risks

by F. V. WELLS, F.C.S.

PETROLEUM hydrocarbons, used alone as a basis for eye shadow, are inclined to give excessive greasiness. A formula such as that devised by M. G. de Navarre[3] is much more satisfactory. The usual raw materials include: petrolatum, ceresin, spermaceti, cetyl and stearyl alcohols, lanolin absorption base, hydrogenated oils; and traces of beeswax, montan wax, carnauba wax or high melting point ozokerite. The latter impart a desirable gloss. Navarre has already noted that beeswax tends to give a granular product when incorporated with zinc oxide.

Eye shadow colors are brought out much more brightly if zinc or titanium oxide (five to fifteen per cent) be used as a "background." The same practice is followed, of course, in lipstick manufacture. A delicately suffused and attractive sparkle can be achieved by the inclusion of two or three per cent pure aluminum. In England, gold bronze is also used for this purpose.

WHY TEXTURE IS IMPORTANT

Eye creams and eye oils are used with the object of smoothing out wrinkles and increasing the turgescence of the slack skin around the eyes. They should not be heavy greases inclined to "drag" on the skin, but reasonably light-textured oils or emulsions. Creams based on diglycol stearate and similar emulsifying agents are suitable. Lanolin creams tend to be rather too heavy for this type of application. High percentages of petrolatum and waxes are likewise contra-indicated. Deodorized cocoa butter is useful, as are also such emollient oils as olive, almond, groundnut, sesame and peach kernel.

A once-popular English "eyelash grower" (we have not seen it since the war) proved, on analysis, to be composed almost entirely of mineral oil, delicately perfumed. At the other extreme are the various eye creams containing so-called "nutritive elements," such as vitamin concentrates, carotene, lecithin, wool wax cholesterol, purified cholesterol, turtle oil, linseed oil, fatty acids and so forth. The perfumes used are generally of a balsaic, semi-medicinal character. Carotene has been especially recommended for use by Gattefossé and Winter, but is markedly astringent in its effect, quite apart from its staining proclivities.

Of the miscellaneous eye cosmetics normally marketed, one may note eye pencils, herb packs for the eyes, eye drops, eyebrow plucking cream, and eye lotions. The manufacture of eye pencils has perforce to be left to the ordinary pencil manufacturers, whose technique is probably restricted by factors outside my immediate knowledge. Judging by what pencils I have examined, however, (of both American and British origin), I feel that considerable improvements could be made in regard to texture and applicability. Usually these eye pencils are too hard and do not leave sufficient trace unless excessive pressure is applied.

Paper-wrapped pencils of lower melting point should prove preferable. I cannot agree with Dr. E. G. McDonough[4] that wooden pencils, which can be sharpened when blunted, are convenient in use. What woman bothers to sharpen pencils, anyway? Wrapped paper pencils of the "rip-cord" type as used in explosives factories, and other places where knives cannot be taken, might quite well solve the problem.

AVOID MEDICATED EYE LOTIONS

Eye drops are, and should remain, entirely outside the cosmetic manufacturer's scope. Highly medicated eye lotions should also be avoided. Obviously the compounding and production of even the simplest eye lotions should be carefully controlled and all hazards guarded against. Most eye lotions call for preservation against fungal and bacterial attack. The use of about 0.3 per cent methyl p.—hydroxybenzoic acid has sometimes proved satisfactory.[5] Other factors to watch are isotonicity, pH ad-

justment, clarity (i.e. complete solubility) and, of course, freedom from irritation.

DERMATITIS RISK

This brings me to the final point, namely the avoidance of dermatitis risks. Here we may note that paraphenylene diamine dyes have actually been employed for tinting eyelashes and eyebrows. Need one add that this is a practice to be avoided at all costs? Even apparently innocuous eye shadows have been found guilty of provoking dermatitis, according to Dr. Henry C. Semon, who is in charge of the dermatological departments of three London hospitals.[6]

Dr. Semon reports four cases: No. 1 was suffering from an exzematous condition of the eyelid and regions surrounding the eye, and admitted that she had been using eye shading made by a well-known manufacturer of cosmetic preparations. She had had two attacks, the interval between them coinciding with a period when her evening engagements were few, when she did not recollect using the tint. A patch test on the thigh gave a rash after eighteen hours. Sedative treatment relieved the rash and there was no return of it. Patient No. 2 had been applying a green and blue tint for over two years. A patch test on the forearm was negative, but the trouble cleared up on giving up the habit. Patient No. 3 had been using both eye shading and a brown eyelash pigment for about a month. Chemical analysis of the eyelash preparation revealed Bismarck Brown which, Dr. Semon points out, is a recognized skin irritant. The eye shade pigment was found to be ultramarine, which was not considered likely to have a harmful effect. Patient No. 4 had been using a green eye shade by night and a blue one by day for four years, always of the same make, without any effect until the irritation finally developed. Application of boric lotion as a cold compress and a cold cream cleared up the trouble. A patch test with the blue color gave a negative result.

In his comments, Dr. Semon says: "The evidence here recorded will be sufficient to convince all but the most skeptical of the possibility of inflammatory response to the more commonly used eyelid pigments." His other observations are also of interest. Regarding tests for the proper mordanting of aniline dyes, he says that solubility in saline or fats is unreliable because it overlooks the possibility of change in the pH values of perspiration and other alterations in the sebum. The effects of direct sunlight, temperature changes, and of sulphur dioxide in the atmosphere, must also be considered. He also emphasizes that from the dermatological point of view there is hardly a more sensitive part of the skin of the body than that covering the eyelids, this fact increasing the inherent danger, while it also accounts for the occasional failure of patch tests on other parts of the body.

Editor's note: conclusion of article.

[3] Navarre, M. G. de "The Chemistry and Manufacture of Cosmetics."
[4] McDonough, E. G. "Truth About Cosmetics." p. 104.
[5] *Pharmaceutical Journal*, 18/11/1939.
[6] Semon, H. C. D.M., F.R.C.P. "Palpebritis from Eyelid Shading" *Lancet*, 28/11/1936.

Paper Collection Up

Although waste paper collections in March—640,000 tons—were the highest for any month since the current paper salvage campaign began in the fall of 1943, efforts to collect and salvage paper should not be relaxed since wartime demands continue to rise, the Conservation and Salvage Division of the War Production Board reports.

"The highest previous month's collection—622,000 tons—was attained in May, 1944," W. Thomas Hoyt, director of the Conservation and Salvage Division, said. "Receipts of waste paper for January and February this year were 537,000 tons and 515,000 tons, respectively.

"While the March collection figures are encouraging, inventories of waste paper do not reflect increased receipts since the demand for paper products has kept consumption abreast of receipts.

"Two serious problems face the Conservation and Salvage Division. They are maintenance of the public's interest in waste paper salvage following the close of hostilities in Europe, and the setting up of summer collection programs to offset the decreases resulting from closing of schools."

Education officials and salvage committee chairmen are being urged by the Conservation and Salvage Division to work out plans for keeping school children actively engaged in waste paper salvage during the vacation period. Emphasizing the need for keeping up waste paper collections during the summer, Mr. Hoyt said:

"We need to maintain collections of about 600,000 tons of waste paper each month during the summer. Unless we do this, we shall not be able to meet the demands of our armed forces for the shipping materials they will need.

"V-E Day did not end the critical shortage of paper, paperboard and pulp which the United States has experienced since the war began. In fact, the demand will increase because of the necessity for packaging the huge amount of supplies required in the Pacific in double and triple wrapping to withstand the long sea journey and intensified climate hazards."

Posters urging conservation of retail packaging, provided by the Conservation and Salvage Division, have been distributed to about 420,000 retail grocery and variety stores throughout the country, with the assistance of field staffs of large food manufacturers, Mr. Hoyt reported. Because of the curtailment of wood pulp for the manufacture of kraft bags, the division felt that these retail stores should have cooperation in persuading shippers to accept minimum practicable wrapping or bags for their purchases, he added.

A Synthetic Skin Detergent

A new synthetic skin detergent has been placed on the market by Fairchild Brothers and Foster. Its makers recommend its use in cases where soap may be undesirable.

Known as "pHisoderm," it is produced in the form of a thick fluid cream which contains no soap, no fatty acids, no alkali, and no perfumes or coloring matter. It has a pH value of 5.5. It is currently marketed through the drug trade.

Company literature states that the product is active in either hot or cold, soft or hard water, even sea water, producing non-alkalin suds, and is non-irritating, non-toxic and hyper-allergic.

A Survey of Spanish Essential Oils

Civil War in Spain decreased the production of spike lavender oil to such low levels that France began its distillation . . . Under normal conditions the French oil does not compete suuccessfully with the Spanish product

by DR. ERNEST GUENTHER

Chief Chemist, Fritzsche Brothers, Inc., New York, N. Y.

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Oil of Spike

The first investigation on the chemistry of spike oil, which dates back more than 100 years, revealed the occurrence of camphor. More complete results were obtained by Bouchardat,[3] and Bouchardat and Voiry.[4] The presence of the following constituents has been established:

d-camphene—Passing gaseous hydrogen chloride through a small (0.20-0.25 per cent) fraction b. about 160 deg. these authors obtained a hydrochloride m. 129 deg. The latter could be reconverted into d-camphene which congealed at low temperature.

d-α-pinene (?)—Bouchardat expressed the opinion that the solid hydrochloride consisted partly of pinene hydrochloride.

cineol—The fraction b. about 175 deg. amounted to about 10 per cent of the oil and consisted of cineol. This was confirmed by the preparation of the dibromide.

According to Tedesco,[5] Spanish spike oils contain from 28.5-35.4 per cent cineol (method of Kleber and Rechenberg).

l-linalool—The fraction b. about 200 deg. consists of a mixture of l-linalool, d-camphor and d-borneol.

linalool—Linalool b. 198-199 deg., αD —16°44′, was converted into geranyl acetate by boiling with acetic acid anhydride.

d-camphor—The presence of camphor in spike oil was first reported by Kane,[6] later confirmed by Lallemand,[7] by Bruylants,[8] and by Bouchardat.[9] The oxime prepared from the camphor of spike oil possessed all the characteristics of regular camphor oxime.

It is interesting to note, in this connection, that camphor is a normal constituent of spike oil but does not seem to occur in true lavender oil. Any commercial lavender oil showing the presence of camphor may, therefore, be suspected as adulterated with spike oil.

d-borneol—This compound was identified in spike oil first by Bruylants[10] and later by Bouchardat. Separated from camphor by the action of benzoic acid anhydride, borneol is dextrorotatory.

terpineol (?)—When passing gaseous

Continued from the previous issue.

Weighing of the Spike Lavender plants at the distillation post

Cutting and collecting of Spike Lavender plants in Spain

hydrogen chloride through the fraction possessing a boiling point similar to that of terpineol, Bouchardat[11] obtained dipentene dihydrochloride. Yet, the parent product which gave rise to the formation of dipentene dihydrochloride need not necessarily be terpineol, as this dihydrochloride may have been formed also from linalool or geraniol. The presence of geraniol, however, has not been definitely established in spike oil.

a sesquiterpene (?)—Analysis of the highest boiling fraction b. 250 deg. pointed toward the presence of a sesquiterpene of the empirical molecular formula $C_{15}H_{24}$.

SPIKE OIL USED IN SOAPS

Oil of spike lavender is widely used for the scenting of soaps. Since the odor of this oil is more camphoraceous, harsher, and stronger than that of lavender oil, it gives especially good results in conjunction with lavender oil or in lower-priced types of soaps.

Spike oil finds use also in many cosmetic and technical preparations, bath salts, room sprays, disinfectants, etc., etc. In general it represents a low-priced substitute of lavender oil.

[3] *Compt. rend.* **117** (1893) 53 1094.
[4] *Ibid.* **106** (1888) 551.
[5] *Revista ital essenze profumi* **9** (1927), 197.
[6] *J. prakt. Chem.* **15** (1838) 163.
[7] *Liebigs Ann.* **114** (1860), 198.
[8] *Chem. Zentr.* 1879, 616.
[9] *Compt. rend.* **117** (1893), 53, 1094.
[10] *Chem. Zentr.* 1879, 616.
[11] *Compt. rend.* **117** (1893), 53 1094.

Oil of Rosemary

BOTANY

Rosmarinus officinalis L., a native of Mediterranean countries, is a small evergreen shrub esteemed since antiquity for its pleasant, slightly camphoraceous odor. The leaves and flowering tops contain a volatile oil which can be isolated by steam distillation.

The erect stems are divided into numerous long, slender branches bearing many sessile, opposite leaves. about 2.5 cm. long, smooth and green on the surface woolly, whitish and glandular beneath. The flowers appear as pale blue verticillasters. Because of their aromatic taste, the leaves are employed as condiment in the seasoning of European, especially French and Italian dishes and sauces. They are also considered emmenagogue and gently stimulant. Upon aging, the leaves lose part of their oil and become progressively odorless.

According to Turrill[1] there exist several varieties and forms of *Rosmarinus officinalis* which might explain the fact that rosemary oils as produced in the various countries and sections show somewhat different physico-chemical properties. However, these variations might also be caused by local conditions of soil, climate, altitude, exposure of the plants to sunlight, and by the season of harvesting, i.e., summer or winter.

Spanish botanists do not doubt that the rosemary growing in Spain is of the same variety everywhere and they attribute the differences in the physico-chemical properties of the Spanish oil to local climatic influences. The regions of Murcia and Almeria possess a warmer climate, especially during winter, than Granada and Jaén.

HABITAT, RANGE AND OCCURRENCE

Rosemary grows wild and quite profusely on lime soil over extended areas, on arid, sunny mountain slopes, especially in Spain, Dalmatia, Tunisia, Morocco and Southern France. The price of the oil distilled from wild plants has always been low and, therefore, rosemary is not planted except in gardens for ornamental purposes.

Rosemary oil was originally produced in Southern France but that industry has almost completely disappeared, being somewhat revived during the Spanish Civil War, 1936-1939.

Quite some years ago, Dalmatia became a large producer of this oil. However, during World War I Dalmatia, then part of Austria-Hungary, suffered from labor shortage and could not export to Allied countries, while Spain, where rosemary grows in great abundance, started distillation in ever increasing quantities, assuming gradually a leading position. Spain's monopoly lasted until the outbreak of civil war in 1936, when a shortage of the Spanish oil and high prices encouraged Tunis and Morocco to produce rosemary oil on a limited scale. Today the bulk of rosemary oil comes from Spain, with Dalmatia, Tunis and Morocco exporting smaller quantities.

PRODUCING REGIONS

Rosemary is distilled mainly in the provinces of Murcia and Albacete, the centers of production there being Lorca, Murcia, Cieza, Caravaca, Calasparra, Tazana, Socovos, Hellin, especially Campo de Lorca, the headquarters of two large farmer-distillers.

Another producing section, supplying much smaller quantities, but oils of superior quality, is in the provinces of Granada and Jaén.

COLLECTION AND DISTILLATION

In Spain rosemary oil is produced mainly from March to July. In case of a heavy demand the oil is distilled also during winter in the province of Murcia. The collecting of the plant material is carried out exactly as with spike lavender. As a whole, the production of Spanish rosemary oil thus resembles that of Spanish spike lavender except for the fact that the bulk of rosemary oil is not produced by the exporters through their own organizations but by a great number of peasant-operators who carry on distillation throughout the year, aside from their regular agricultural activities. Since these peasants do not count their own or their families' labor, the exporters can buy the oil from them cheaper than they could produce it through their own distilling organization.

Field Distillation of Rosemary in Spain

During the summer months 12 arrobas (1 arroba = 11.5 kilos or about 25 pounds) of plant material yield about one kilo of oil, while during the winter months 20 arrobas of plants are required per kilo of oil. The yield thus varies from about 0.725 per cent in summer to 0.435 per cent in winter.

PHYSICO-CHEMICAL PROPERTIES

As pointed out in the chapter on Botany, the properties of Spanish rosemary oil differ according to producing regions.

Samples of authentic oils which the author collected in the provinces of Murcia and Albacete, Spain's chief rosemary producing regions, had the following properties:

	Lorca	Cieza	Calasparra
Specific Gravity at 25°	0.898	0.896	0.896
Optical Rotation	—0°32'	—2°14'	—2°27'
Total Alcohol Content, calculated as Borneol	10.4%	10.6%	10.9%
Ester Content, calculated as Bornyl Acetate	2.6%	2.8%	2.8%
Solubility	Clearly soluble in 5.5 to 6 vol. of 80% alcohol and more.	Clearly soluble in 6 to 7 vol. of 80% alcohol and more.	Soluble in 10 vol. of 80% alcohol with slight turbidity.

These genuine oils were laevorotatory and not completely soluble in 10 volumes of 80 per cent alcohol. Therefore, they did not quite meet the present specifications of the U.S.P. XII.

Authentic samples collected by the author in the other, less important producing regions of Spain, viz., Jaén and Granada, had the following properties:

	Jaén	Granada
Specific Gravity at 25°	0.898	0.898
Optical Rotation	+4°53'	+4°47'
Total Alcohol Content, calculated as Borneol	14.8%	15.1%
Ester Content, calculated as Bornyl Acetate	2.8%	2.9%
Solubility at 25°	Soluble in 6 and more vol. of 80% alcohol	Clearly soluble in 10 vol. of 80% alcohol.

These properties fall within the specifications of the U.S.P. XII.

The quantities of rosemary oil produced in the provinces of Jaén and Granada represent only about 15 to 20 per cent of the total amount produced in Spain. Yet, the Jaén and Granada oils have been in considerable demand because of their better physico-chemical properties.

From information secured by the author while surveying the production of Spanish rosemary oil, it appears that oils distilled during the winter months are generally less soluble than those distilled in summer. Furthermore, plants collected from slopes with southern exposure give oils of better solubility than those gathered from hills facing the north.

Genuine lots of Spanish rosemary oil imported during past years and analyzed in the New York laboratories of Fritzsche Brothers, Inc., had properties which varied between the following limits:

Specific Gravity at 25°	0.893 to 0.910
Optical Rotation at 25°	—5°38' to +10°19'
Refractive Index at 20°	1.4683 to 1.4709
Free Alcohol Content, calculated as Borneol	8.7 to 15.6%
Ester Content, calculated as Bornyl Acetate	1.0 to3.8%
Solubility	Soluble in 4.5 to 5 vol. of 80% alcohol; some genuine oils turbid in 10 vol. of 80% alcohol.

Many lots of genuine Spanish rosemary oils do not fall within the limits of the U.S.P. XII. Therefore, it has been decided that the specifications of the U.S.P. XIII be revised accordingly.

ADULTERATION OF ROSEMARY OIL

In past years oil of rosemary was frequently adulterated with oil of turpentine, but lately more "efficient" products have been employed for this purpose, for instance, certain fractions of camphor oil, oil of pine steam distilled, eucalyptus oil terpenes, furthermore fractions resulting from the manufacture of terpineol. Using these various products skillfully, the adulterator has little difficulty in arranging the properties of his oils in such a way that they will meet regular routine tests.

PRODUCTION OF ROSEMARY OIL

During the years from 1931 to 1935, the annual total production of Spanish rosemary oil varied from 60,00 to 150,000 kilos. Production fell off considerably with the outbreak of the Spanish Civil War in 1936, until it amounted to only about 10,000 to 12,000 kilos per year. Since the end of hostilities in Spain production has been increasing again and will probably reach 70,000 kilos during 1945.

According to the author's knowledge no chemical investigation was carried out on Spanish rosemary oil but oils of Dalmation, Italian and French origin were examined by various workers.

The following constituents have so far been identified in rosemary oil:

α-pinene — Investigating an oil of own distillation (Dalmatian leaf material), Gildemeister and Stephan[2] found that α-pinene occurs in the fraction b. 156-158°, probably as a mixture of the *d*- and *l*- form. Pinene was characterized through the preparation of its nitrolbenzylamine derivative m. 122-123°.

camphene — Treating the fraction b. 160-162° with glacial acetic acid—sulfuric acid mixture and saponifying the product of reaction, the same authors obtained isoborneol m. 211-212°. It was possible to reconvert isoborneol into camphene m. about 50°. The low rotation of the camphene fraction suggested that this compound is present in the oil as optically inactive camphene.

1. *Kew Bull.* 1920, 105.
2. *Arch. Pharm.* **235** (1897), 586.

(Editor's note: This article will be continued in the next issue.)

Short Adages

by R. O'MATTICK

PAN-AMERICAN AIRWAYS has already announced that on the resumption of post-war travel there will be round-the-world flights for commercial passenger planes; flying time—eighty-eight hours and cost $700. Reservations have been made by eleven passengers, several of whom have become nationally known as pioneers on first flights to new destinations, including our own famous Dr. Rowmateral!

* * *

From New York the plane will hop to Lisbon (the very place from which Cris Colombus hopped to the New World about four hundred and fifty years ago). Then Marseille, Rome, Athens, Cairo, Basra and Karachi.

* * *

We have only the most indefinite idea where Basra and Karachi are and while we have always made every effort to give our faithful readers the benefit of our wisdom and worldly knowledge it is just too hot and humid at this moment to look up these places in the Atlas which is on a table three feet away—a distance requiring far too much energy to reach on such a day as this.

* * *

If memory serves—Basra is the same place as Bassorah and has something to do with Turkish Geranium that by an Oriental process of witchcraft is transformed into Bulgarian Otto of Rose. Yet we still cannot recall just where the place is so we dismiss it by saying Mesopotamia.

* * *

But to get back into our Pan-American plane and on with our flight! From Karachi, wherever that is—we go to Calcutta, then via Bankok to Canton, Toyko, Paramushiru and Anchorage. Our first stop back in our own country (laden with Jasmin, Rose, Patchouli, Costus and every other essential oil and flower absolute we need) is Seattle. From this suburb of the Empire City it is only a bit of a skip back to New York.

* * *

The plane travels at a fantastically swift pace but nothing travels swifter than rumor, or as the old Roman put it, *Fama nihil est celerius*. And rumor has it that there will be other passengers in addition to Dr. Rowmateral who are in the perfume business. They are making plans to get on planes for the supply of what they need is getting lower and lower. If the mountain doesn't come to Mohammed, Mohammed will come to the mountain.

* * *

Meanwhile (the planes have not left as yet on these round-the-world flights) Mr. John W. Thomas, chairman of the board of directors of the Firestone Tire and Rubber Company, made a speech to the American Institute of Chemists which is most puzzling to us. We quote from a report in the New York *Times:* "If every nation could possess within its boundaries all of the raw materials it needs to live and to prosper there would be little, if any, cause for war. I am convinced we are slowly approaching the time when this dream may in part become a reality through the medium of scientific research."

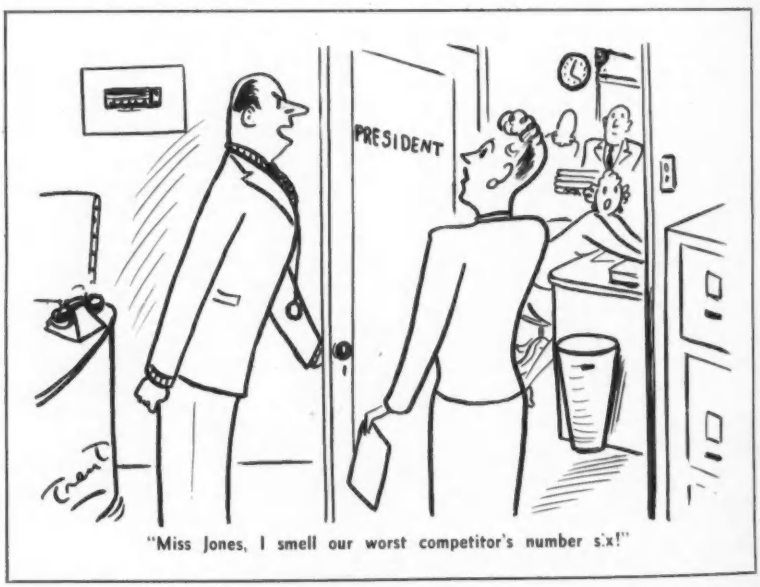
* * *

This column has never been devoted to controversial subjects but only to sweet fragrances and pleasant thoughts. So we shall not tear apart the message from which we quoted above. We hope our readers see what it has to do with Round-the-World Flights and Planes and Raw Materials and Perfume Oils and Trade and Peace and Causes of Wars and Isolationists and many other things.

* * *

It is not true, to come back to shop-talk, that we have gotten along without flower oils and other natural products in the Perfume Business quite to the *extent* that many suppliers and consumers think. While we have stinted to no end, making a drop or two do where in pre-war days drams were not counted, there were considerable stocks of natural products here before we were cut off from the sources of supply and some things have gotten across already. So that if you smell some very fine perfume or toilet-water and wonder how it's done, know by these presents that there is some natural flower oil in it somehow and somewhere—if only a mite. In modern perfumery, you just can't take aromatics and blend them to make anything that will live. Nor, by the same token, can you take all the naturals and blend them to make something that will be really interesting. If the naturals that will be offered from other lands will be quoted at fabulous prices, it is then that organic chemists will really roll up their sleeves and get to work and start things going with really remarkable things.

The wheel turns and turns. Naturals will become more available as time goes on and unless something happens—aromatics will become extinct. Pat Chouli says the day is not far off when a perfume chemist holding a mixture of Rose de Mai, Jasmin Absolute, Neroli Bigarade and other priceless items, will exclaim, "I wish I had a little Terpineol to put a touch of it into this so that the odor would have some life to it."



"Miss Jones, I smell our worst competitor's number six!"

Cosmetic Trends in the Middle West

Cream depilatories sales reach all time high . . . Cake powder sales mount in summer weather . . . Cosmetic line exclusively for juniors is formally presented

by JEAN MOWAT

THE best laid plans of merchandise managers and buyers have gang aft with the weather that has been doled out in the Middle West this summer. Complaints vary from those which are gripes in the drug stores to the damnation of wet, humid, cloudy weather that has already upset the program of events for every cosmetic department.

Old Sol has been playing a leading role by leaving the stage, and several results have appeared which were not on the planned summer program: Leg lotions which were expected to go over big due to the hosiery situation are running 60 per cent behind the same period last year in one large chain, but the peculiar part of the situation is that sales on cake make-up have more than doubled during the past year. But when Old Sol does stick his head out and the mercury rises it is almost impossible to get near a leg-make-up counter. Apparently everyone must wait for the sunshine before deciding what and how much to use.

DEPILATORY SALES UP

As might be expected, or as most people in the cosmetic business have hoped, the sales on cream depilatories have reached an all time high. Conservative buyers who merchandise both men's and women's cosmetics say that the demand this year exceeds the planned figures, so perhaps when the half year ends this month it will break even.

The one big factor which makes buyers happy is that little advertising has been done on these new cream hair removers and yet the daily sales, in spite of weather and high water, continue to move upward. This is a factor which may grow to be more important as the hot weather finally arrives. Closely allied with this type of hair removal is the special abrasive which many women prefer to use, but which is only successfully sold in stores that can give time to explain its proper use. Several months ago activity was reported on this and now it is said sales have more than doubled.

B.O. GOES

Deodorants are moving into a most important point in sales for men and women. While many women have been using them for years and have, incidentally, so say buyers, been buying them for the men in the family, they are now offered directly to men in their own cosmetic department in the men's stores. The results of the introduction there has been to increase sales far beyond what was expected. This is especially true in department stores, but even chain drug stores report that more men are purchasing this item and also buying many more allied shaving items.

If any one in the cosmetic business has felt that the sale of men's toiletries was slow he has not taken time to study the advertising and the special counters which are now being devoted to them in many of the leading department stores. In addition there are a number of exclusive men's furnishing stores that have installed these departments and say the results are "amazing." While generally shaving items are sold, there is an increasing sale of the finer type of colognes, designed to give that tantalizing fragrance which has the freshness of an ocean breeze, because men have worked it out for their own sex. Their sale in all the leading cities of the Middle West was a big item for Father's Day. Maybe he will find some of the things just to his liking, but women certainly patronized these departments.

Another sale that is increasing in volume to men is that of the various cream shampoos. When buyers report they like it much better than soap they not only have given it a boost but they are making it a feature in advertising and display in the men's toiletries departments. Some idea of the importance the sale of these items to men is taking on may be gleaned from the full page ad which Marshall Field & Co. used as a bait for the perfect Father's Day gift. Not only was it an announcement for that day but it was institutional in character. Baskin used a quarter page to tell the same type of story, and The Hub of Chicago was another that used a half page. Quarter pages were also used by Mandel Brothers, which has installed a men's department, and by Chaix-Copley, St. Paul, that carried a line of "masculine grooming essentials," as did Finchley's of Chicago.

SUMMER COLOGNE SALES

Cream colognes are not as popular this summer as last due in large part to the fact that more liquid types are available and are selling in ever increasing volume. This is especially true in the drug store end, but many of the speciality shops and some de-

partment store buyers expect a definite percentage of creams to remain as part of the regular line, for they continue to have good sale to a particular clientele.

Big business in perfumes and light floral colognes are mounting as the weather warms up. Important buyers and merchandisers are expressing the opinion that French perfumes will have to maintain a very strong campaign to again gain the position they had previous to the war.

While Europe was at war, perfume makers here continued to experiment and perfect each batch until today most buyers state they will only take on French types for prestige, as the women definitely prefer the fragrances that have been developed by their own chemists. The fact that sales have increased so much would indicate that a new class of consumers have taken to these as they never did to the French fragrances. One buyer stressed the point that delicate lasting fragrance was the reason for the switch and she is of the opinion it will stick. "Somehow the chemists made it an American odor," she explained.

TRAINING SCHOOLS

Cosmetic merchandisers for leading drug chains have stated recently that if their clerks had the training given the department and specialty stores they would really make worth while sales. Apparently that time has come. The Twin City Retail Druggists Association is working with an evening school, and has 31 of its clerks attending a six weeks' course. The clerks serve as guinea pigs and also work with the instructor on the application and use of cosmetics.

Walgreen's has opened a school and is giving special cosmetic instruction which is expected to produce excellent results. With such training more intelligent selling can be done in these stores, is the opinion of major executives.

Because the people selling cosmetics in drug stores are not trained, there has been little sale of treatment lines and little ensemble selling. While cream powder bases are steadily growing in department stores, they are slow in drug stores, and stocks are small for usually a sale is made only on demand. With the training being given these days a change may be expected and a large sales' volume of treatment lines may well follow.

PHOTO FINISH

Hot weather, and especially the humid weather throughout this territory, has spurred sales of cake powder. The Golden Rule in St. Paul used a three-color half page ad to stress the smartness of this powder for these days and combined with it face powder and lipstick. The Dayton Co. of Minneapolis also gave space to this and both stores enjoyed a good response.

The Hub in Chicago used a half page to present the same idea and suggested its coolness by a "Bali Belle" and the institutional slant of the idea was reason for many sales. Sax-Kay of Detroit and Hudson's also gave accent and stress to this. While little of this advertising or promotion was directed to the younger generation it had instant appeal for graduations and produced a great deal of business.

EXCLUSIVE FOR JUNIORS

A cosmetics line for juniors, as attractively boxed and as gay in color as any Christmas present, was formally presented in conjunction with a junior fashion show at Marshall Field & Co. The idea in its ensemble form is new, for it is said to be one of the most complete lines, especially planned and perfumed, for that person who is between 8 and 18. Undoubtedly it will sell to ages on each side, for the fragrance is soft and delicate as well as clinging.

Several combinations of boxes are offered that include such items as a soap bar that is a bow of ribbon bottles of hand lotion, shampoo, cologne, bubble bath and dusting mitt. These cosmetics are in the girl's department and therefore have a place exclusively their own. At the fashion show a tiny bottle of cologne and a gay card telling of the products was handed to each person who attended. If the number of buyers from Milwaukee, Indianapolis, St. Louis and Kansas City stores who came to study the arrangement and display is any criterion, then the sales made will certainly begin to break summer records.

Buyers have admired the courage of the firm to put up such a package and to include in it that pink pomade lipstick rather than a real lipstick, but to the younger teen-ager it is certainly a gift. They all agree that in their whole section about the only items which could be sold for this young generation was a dusting mitt (usually too large for the small hands) and a bubble-bath, or sometimes bath salts. It will be interesting to watch the progress of this line. Coming as a pre-graduation idea it naturally went off with a bang.

Throughout the leading stores in the Middle West the weather has delayed the sale of all sun tan lotions, unguents, creams and similar items for protection against Old Sol. But as the sun moves toward the South it may be expected to be much hotter and stocks now dragging will be cleared out over night.

Soap bars are having an unusual business. Fancy boxes are being sold as de luxe gifts and buyers report that often the giftee likes it so well she returns to buy some for herself and add to her present stock.

Canadian Soap Production

Production of soap is at the 1941 level and has not been cut recently manufacturers state, and there is no shortage at the present, as far as they are concerned. The shortage of soap in retail stores is said to be due to a run on the stores by the consuming public as the result of expectation that the manufacturers' fat quotas may be cut which, in turn, would force a reduction in production.

With Canadian manufacturers now receiving 100 per cent of the oils and fats used in 1941 as compared with about 80 per cent in the United States and even less in Great Britain, and with the incentive to produce soap in order to obtain its by-product glycerine removed through reduction in glycerine requirements as a result of cutting back in ammunition production, a 12 per cent cut in the Canadian fat quota may be made shortly, it is expected.

Shortage of soap in stores so far has been mostly of laundry soaps due to large quantities of this type which have been exported and taken for the armed forces. While some relief is expected from a reduction in the volume supplied the armed forces, the demand of United Nations Relief and Rehabilitation Administration will have to be met and may take up any slack, it is thought.

Technical Abstracts from Scientific Literature

These brief abstracts listed provide a convenient key to current scientific literature of the world on perfumes, cosmetics, soaps, dentifrices and other preparations

Crystallization of Binary & Commercial Soap Systems. R. H. Ferguson and H. Nordsieck. *Ind. & Eng. Chem.*, **36**, *748, 1944.* Although the short spacings of x-ray diffraction patterns have proved most suitable for identification of at least four crystalline modifications of sodium soap, it is necessary to turn to the long spacings in order to ascertain the crystallization behavior of the individual fatty constituents of mixed and commercial soaps. The present study, based on long-spacing data, indicates that fractionation into the constituent single soaps is completely absent when anhydrous binary systems crystallize from isotropic melt. Fractional crystallization may occur when there is a sufficient difference in chain length between the two components, but even here the fractions are solid solution phases and not pure components. It appears to be the general rule that commercial soap crystallizes as a solid solution. No evidence of fractional crystallization has been observed in commercial soap.

Stable Casein Solutions. Ger. 730,693. Casein solutions having a pH of 8-10 are stabilized by an addition of a quaternary ammonium base such as laurylpyridinium chloride or lauryltriethylammonium chloride. The pH should not be changed by the added base. (Through *C. A.*, **38**, *602, 1944.*)

Tetrasodium Pyrophosphate Compositions Suitable for Use in Dentifrice. U. S. 2,326,949. A product suitable for use in flake or shot form is produced by dispersing sodium tetrapyrophosphate in a fluid molten magma comprising trisodium phosphate and water, the proportion of trisodium phosphate, calculated as dodecahydrate, to sodium tetrapyrophosphate, calculated as decahydrate, being at least about 1:5 by weight, and solidifying the mixture as discrete particles, as by flaking on a flaking drum. (Through *C. A.*, **38**, *603, 1944.*)

Electron-Microscope Pictures of Isolated Scale Cells of Wool. H. Zahn. *Melliand Textilber.*, **24**, *137-60 (1943)*; *cf. C. A.*, **37**, *4577.* In the degradation of isolated scale cells with pancreatin, fibrils are set free which agree in their structure with those found in the spindle shaped cells. The structures are very long, are arranged parallel and are 100-500 mu wide. 10 pictures. (Through *C. A.*, **38**, *646, 1944.*)

Analysis of the Water Adsorption Isotherm of Wool. J. B. Speakman. *Trans. Faraday Soc.*, **40**, *6-10 (1944).* The water adsorbed by wool appears to be of 3 types: (1) a-water, which combines with hydrophilic side chains with great evolution of heat (5.8 kg—calculated per molecule of a-water adsorbed, this being the same order as the heat of hydration of —OH groups); (2) loosely bound B-water, which is responsible for the fall in rigidity of wool during water adsorption, and is associated with the peptide groups of the main protein chains, combination being complete when each peptide group is associated with 1 water molecule; (3) water condensed in capillary spaces at relative humidities greater than 80 percent. This is in agreement with the 3 distinct sections in which the curve giving the relative rigidity as a function of water adsorbed (% on dry basis) may be divided. (Through *C. A.* **38**, *3529, 1944.*)

Antioxidants in Edible Fats. Antioxidant activity in vegetable oils and oil-bearing tissues is usually measured by the apparent absorption of oxygen as indicated by the reduction in pressure or volume in a closed system, or by following the accumulation of peroxides in the fat. Lea (*J. Soc. Chem. Ind., 1944*, **63**, *107*) has completed a series of experiments carried out at 100°C using a chemical method to give antioxidant activity, and also at 37°C, using taste and colour of the fat as additional criteria of condition. The degree of protection afforded by a given concentration of a particular substance was greater at 37°C than at 100°C. The lower esters of gallic acid appeared to be satisfactory in affording marked protection against oxidation without causing discoloration or imparting foreign flavour. Ethyl gallate considerably retarded the development of tallowness and loss of carotene in butter fat exposed to air at 37°C. In lard it was equally effective and also in cottonseed, arachis and palm oils at 25°C, although in the last oil evidence of oxidation as measured by the deterioration in flavour was less marked. (Through *The Pharm. Journal*, **153**, *25, 1944.*)

Waterproofing With Ozokerite. N. P. Batsyn. *Tekstil. Prom., 1943, No. 4/5, 15.* Stearin, paraffin and aluminum oxide usually used for waterproofing were successfully replaced by ozokerite, waste fat and ferrous sulfate. An emulsion was prepared from ozokerite 150, waste fat 100, 32.5% Sodium Hydroxide 16-20, 25% Ammonium Hydroxide 15-20 and Water 180 g. Details of using the emulsion and the subsequent ferrous sulfate treatment are given. (Through *C. A.*, **38**, *647, 1944.*)

Packaging PORTFOLIO

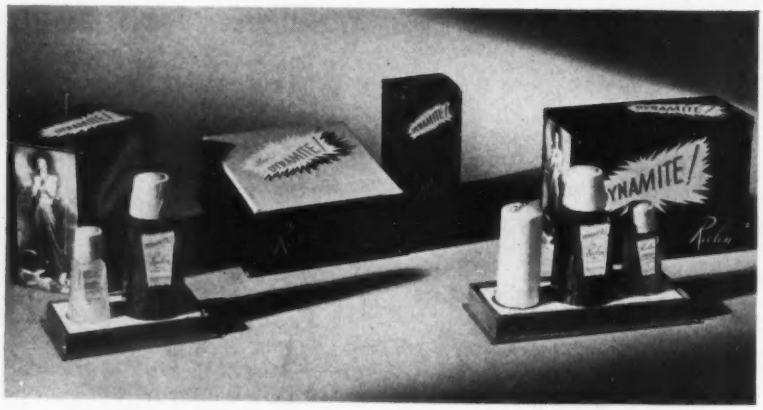
LUCIEN LELONG: Quick Change liquid make-up is presented in a two ounce spool bottle. The pink plastic cap is a versatile one. It has been especially designed to make the application simple. After shaking well, the fine residue that clings to the cap is just enough for the face and throat. Quick Change is recommended for a radiant appearance, one that may enhance a genuine tan.

LUCIEN LELONG

BABANI

BABANI: A gold plated metal crown and gilt label accent the smartness of the smooth, modern lines of the new bottle design for Ambre de Delhi. Base and cover in desert tan suede paper make a lovely and practical presentation for the triumph by Babani.

REVLON



REVLON: Dynamite becomes another color triumph for Revlon. The clear red lipstick and nail polish and the Sheer Dynamite face powder are presented in attractively different navy blue. The bursts of dynamite, and the use of actual photographs are the prominent features of the new Revlon packaging. The group has been designed to accent . . . in color . . . the new summer bare costumes.

HARRIET HUBBARD AYER

LEJEUNE

LEJEUNE: Cupid's Dream, a shimmering creation in gold and plastic, is presented by Lejeune. A one and three-quarter dram bottle is mounted on a transparent plastic base, surmounted with a gold plated metal lily on which the bottle rests. The perfume is a fragrance to delight the senses.

HARRIET HUBBARD AYER: Pink Clover beauty and bath accessories have been completely re-dressed in a series of bright new packages. Clover blossoms swirl across the containers in delicate pink and fuchsia tones combined with bright pastels—turquoise, emerald green, aqua-blue. The talcum carries the same design, but has a pink plastic top.

VITA RAY: An ice-cold bottle of sparkling Gallivanting Bouquet is an 'ounce of prevention' against a wilted, sticky look. The floral scent is attractively presented in an eight ounce bottle, capped with blue plastic, and tied with a pink bow.

VITA RAY

PINAUD: Synchrotone is the new summer adventure by Pinaud. The cake make-up and rouge are presented in a base of white, with a deep red plastic cover. The soft, clear lipstick is fitted into a rich red case and operates smoothly on a swivel. The new group comes in four clear, rich shades ... all blended to synchronize and harmonize with any skin tone, and all blended to match.

PINAUD

SOAPS

Soap—The Premier Emulsifying Agent

Since the majority of cosmetic preparations are emulsions, it is obvious that soap, in one form or another, enters extensively into the manufacture of modern toilet and beauty preparations

by GEORGIA LEFFINGWELL, PH.D.

IN addition to its other important industrial uses, soap remains the premier emulsifying agent. Since the majority of cosmetic preparations are emulsions, it is obvious that soap, in one form or another, enters extensively into the manufacture of modern toilet and beauty requisites.

EMULSIFICATION PROCESS

Emulsification is essentially the process of mixing oil and water[1] and, since the manufacture of most cosmetics depends upon the successful blending of oils, fats or waxes with water or aqueous solutions, this is the fundamental principle upon which the modern industry relies. Without becoming involved in theory, it may be said that, with minor exceptions, it is not possible to produce stable emulsions of oil and water without the presence of a third material, the emulsifying agent, which prevents the separation of the immiscible phases.

The superiority of soaps over gums as emulsifiers for certain substances is illustrated by the fact that 1 gm. of soft soap in 4 cc. of water emulsifies 210 cc. of almond oil, whereas 1 gm. of gum acacia in 4 cc. of water emulsifies only 21 cc. of this oil.[2] Frequently, however, soaps and gums augment each other as emulsifiers.

TWO TYPES OF EMULSION

There are two types of emulsions. The first is the oil-in-water type in which the oil is dispersed as fine droplets in water. The second, the water-in-oil type, is a dispersion of water in a continuous phase of oil. As example of oil-in-water cosmetics may be mentioned vanishing creams and related products like brushless shaving creams and hand creams, beauty milks and hair creams. The water-in-oil type is used in cleansing creams and some cold creams.

Today, most of the oil-in-water emulsions most widely used in cosmetics, are soap stabilized.[1] Normally the soap is formed *in situ*, during the mixing of the fatty and aqueous phases. However, soap, as such, is extensively employed in making this type of emulsion product. It is this usefulness of soap that forms the basis of the present discussion.

It has been said[3] that "The best emulsifiers for oil-in-water emulsions are soaps." According to Berkman and Egloff,[4] water-soluble sodium and potassium soaps are among the best emulsifying agents for oil-in-water emulsions and very small amounts of soap can act as good emulsifiers. Entering into theoretical considerations, these authorities point out that in an emulsion stabilized with soap there are to be considered not only the dispersion of one liquid in another, but also the soap-in-oil and soap-in-water solution systems, together with their respective equilibrium factors.

In Bennett's text[5] it is stated that the soaps used most frequently as emulsifiers are the sodium or potassium salts of lauric, oleic, palmitic and stearic acids and their mixtures. They are easily hydrated (solvable), foam in water, lower surface tension and increase detergency. Soaps will take up considerable amounts of water, the quantity increasing with the molecular weight of the fatty acid radical.

PREPARED SOAPS AS EMULSIFIERS

Many examples of the direct use of prepared soaps as emulsifiers for making various cosmetics are avail-

able in the literature. In many cases, soap is used as the sole emulsifying agent, as in the following rather simple hair cream[6]:

Powdered soap	50 parts
Water	36 "
Glycerine	18 "
Peanut oil	40 "
Perfume	12 "

Dissolve the soap in the hot water and add the glycerine. While stirring well add the oil and continue stirring until homogeneous and add the perfume; continue stirring until nearly cool. Running through a colloid mill will provide maximum stability.

The same source also provides an easy way to prepare a brushless shaving cream in which the emulsifying properties of soap are brought into play:

Stearic acid	12 parts
White mineral oil	12 "
Paraffin wax	5 "
Soap flakes	3 "
Water	72 "

Old fashioned almond creams, in which crushed sweet almonds rather than expressed almond oil provided the desired effects, were often made with soap to yield the very fine, popular emulsion products. The British authority, Poucher,[7] in pointing out that crushed almonds gave better results, presents a soap-utilizing formula that yields a beautiful white cream. The procedure described is rather involved, hence simpler types of almond creams are more practical for large scale production. One such almond cream, as given by Chilson,[8] consists of:

Cetyl alcohol (technical grade)	2.70 per cent
Powdered castile soap	0.63 " "
Glycerine	0.18 " "
Sweet almond oil	0.67 " "
Alcohol	0.90 " "
Perfume oil	0.30 " "
Water	94.62 " "

As previously indicated, soap may be used in conjunction with vegetable gums; the emulsifying properties of the former being augmented by the thickening and suspending, as well as the emulsifying, properties of the latter. The use of such combinations is often illustrated in the preparation of bath milks and similar products. Thus, a pine needle milk may be made by first preparing a 5 per cent solution of 80 per cent soda soap in alcohol. Five parts of the finest pulverized gum tragacanth are then triturated with 100 parts of the soap solution. After this 45 parts of pine needle oil and 5 parts of juniper oil are dissolved in 125 parts of alcohol and this solution is mixed with the soap-gum paste. Thereafter 550 parts of water (at 30 deg. C.) are added and the mixture is agitated for an extended period. The resulting thick emulsion is ready for use and can be added directly to the bath.[6]

BORAX AS AN EMULSIFIER

Soap's emulsifying and other properties are used also in conjunction with borax. Itself a good emulsifier, borax is especially valuable in compositions containing beeswax. Soap and borax are frequently used together in the production of hand lotions containing gums or mucilages, plus other ingredients. Illustrative of the many such formulas available in the cosmetic literature is the following[9]:

Quince mucilage, 2½%	50.00 parts
Spermaceti	3.00 "
Beeswax	1.00 "
Powdered castile soap	3.50 "
Borax	0.85 "
Glycerine	5.00 "
Alcohol	5.00 "
Water, to make	100.00 "

Perfume to suit is added and a preservative is required.

Of course, other types of cosmetics may benefit from the use of a soap-borax combination. As an example there may be cited a hair dressing cream made from[10]:

Stearic acid	2 lb.
White mineral oil	2 pt.
Potassium carbonate	1¼ oz.
Borax	½ oz.
Water	1 gal.
Powdered neutral white soap	½ oz.
Oxyquinoline sulfate	60 grains
Perfume oil	sufficient

According to DeNavarre,[9] cetyl and stearyl alcohols, oxycholesterin, lanolin and numerous sterol-containing substances produce emulsions of the water-in-oil type because these materials are easily wetted by oil and not by water. In the presence of excess soap of monovalent metal, however, any of the latter will form emulsions of the oil-in-water type. In view of the growing popularity of lanolin-containing preparations, it should be noted that soap has long been used to make cosmetics utilizing the emollient properties of wool fat. Liquid lanolin cream, for example, depend upon a suspension of lanolin by the aid of soap; the following being a satisfactory formula[6]: see above

Hard soap	1 part
Distilled water	8 "
Hydrous wool fat	8 "
Glycerine	8 "

If a more liquid cream is desired, the amount of soap may be increased to 1½ parts and the glycerine and hydrous wool fat reduced to 4 parts each.

Another recommended lanolin lotion[8] in the field of cosmetics, makes similar use of soap:

White powdered soap	1.0 per cent
Lanolin	10.0 " "
Borax	0.5 " "
Water	88.0 " "
Perfume	0.5 " "

So-called skin milks containing lanolin as a major ingredient likewise often depend upon the emulsifying qualities of soap, as in the following composition[6]:

Lanolin	50 parts
Pure neutral white soap	3 "
Glycerine	20 "
Rose water	300 "
Tincture of benzoin	5 "
Perfume bouquet	10 "
Water	612 "

Cetyl alcohol, which has established a firm place for itself in the production of fine cosmetics, may be similarly employed in the production of toilet milks. Bennett's text[6] gives this example:

Cetyl alcohol	68 parts
Medicinal soap	18 "
Glycerine	23 "
Mineral oil	91 "
Water	780 "
Perfume	20 "

Cosmetic products containing higher proportions of fatty materials, like night creams and cleansing creams, are generally considered as water-in-oil emulsions. Although soaps are not generally considered suitable as emulsifiers for products of this type, we do find soap employed in making items in which the percentage of fatty constituents exceeds that of the aqueous components. A case in point is offered in the following semi-greasy night cream, which in addition to its cleansing action, is said[10] to be fine enough to be used as a vanishing cream or a powder base cream:

White wax	1½ oz.
White petrolatum	2½ oz.
White mineral oil	4 oz.
Lanolin	1¼ oz.
Stearic acid	1 oz.
Borax	½ oz.
Powdered castile soap	30 grains
Water	8 fl. oz.

A facial cream, containing a higher proportion of fatty materials,

similarly employs a small quantity of soap as the emulsifying agent[10]:

White wax	1 lb.
White ceresine	2 lb.
Spermaceti	1 lb.
White mineral oil	13 pt.
Castor oil	14 oz.
Water	6 pt.
Powdered castile soap	¼ oz.
Perfume oil	1-1½ oz.

Soap's emulsifying properties are useful in still another way—namely to obtain pearliness, or a satiny appearance, in vanishing creams. Many methods have been advocated to obtain this desirable sheen, and, according to Poucher,[7] the problem of producing this phenomenon appears to lie in finding the best medium in which to emulsify the stearic acid so that it can rapidly form lustrous laminae. In the course of experiments he found that pure curd soap answered this purpose and produced a sheen within twenty-four hours. The soap may be dissolved in boiling water and poured into the hot stearic acid while stirring briskly. However, a satisfactory pearly cream may be produced by using curd soap in conjunction with any approved formula. From 1 to 5 per cent yields an attractive sheen which increases in proportion to the quantity of soap used.

In the following benzoin and almond cream, two or three days are required before the sheen appears, and it is stated[6] that a better sheen would no doubt result if the almond oil were omitted:

Stearic acid	20 parts
Potassium hydroxide	1 part
Curd soap	3 parts
Water	150 "
Almond oil	2 "
Tincture of benzoin	2 "

Certain of the newer emulsifying agents often require the presence of small amounts of soap in order to work efficiently.[5] For example, according to Redgrove,[11] glyceryl monostearate, one of the most important cosmetic materials, is not an emulsifying agent in its pure state. Formulas specifying this material as an emulsifier are found to be unworkable, when the product, as such, is employed. On the other hand, in combination with certain true emulsifying agents, such as soap, glyceryl monostearate is highly effective.

Similarly, in discussing glyceryl monostearate, DeNavarre[9] observes: "All of the self-emulsifiers that work easily, rapidly, surely, and that can stand abuse, contain a small amount of soap as added emulsifiers usually from 5-10 per cent of potassium stearate, oleate, myistate or laurate. This soap in the finished emulsion has little effect on the pH of the resulting mixture, and greatly facilitates manufacture.

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Fighters Like Cleanliness

That soldiers both home and abroad have discovered cleanliness is necessary to health and comfort seems evident with an announcement by Col. George F. Spann, QMC, Commanding Officer, who states that the Jersey City Quartermaster Depot purchased more than 625,000,000 pounds of soap during the year 1944. Representing the total needs of the Army all over the world, this quantity also includes some special procurements for the Marine Corps.

Army planning groups are cognizant of the importance of laundry and bath units, from the standpoint of health and morale. Recent stories from the Fifth Army in Italy tell of more than 2,000,000 showers and clothing exchanges and nearly 11½ million pounds of laundry work for combat troops handled by Quartermaster Corps units during the past year. At Aachen, laundry and bath companies were established as near to the front as possible, often close to the actual fighting. Setting up camouflaged equipment in groves where the trees helped conceal operations, units were able to service small groups, withdrawn from the line in rotation without hampering front-line operations and sent back for a shower or bath and change of clothing.

More than half of the overall purchases made at the Jersey City Quartermaster Depot is yellow laundry soap, while the next largest category is wrapped toilet soaps of nationally-known brands in commercial sizes. The latter, along with wrapped laundry soap in the 10-ounce size, is resold through post exchanges overseas to service men and women.

One of the most interesting types of soap purchased by the Army is an all-purpose soap which lathers in every kind of water. About 2,800,000 pounds are being purchased each month in the four-ounce size, while 13,000,000 two-ounce cakes were purchased in a recent three-month period to be included in the Army's "10-in-1" ration. Other soap purchases include powdered and flaked soaps for laundries, packaged granulated soaps for post exchange resale, mobile laundry detergents for washing clothes in sea water on Army hospital ships and dry cleaning laundry soaps. Standard brand soaps, procured in two-ounce sizes, are included in the "10-in-1" ration when the Army is unable to procure sufficient quantities of all-purpose soap in this size.

American fighting men, who once had to be coaxed to "wash behind the ears," have changed their minds about the need for soap and water. They are lavish in their praise of the excellent results accomplished by the sterilization and bath units and laundry companies which make such facilities available. One such company in Italy went a step further than the guide books and set up a radio in all dressing tents to provide the entertainment-hungry men with music and news.

FLAVORS

Emulsion Flavors Important in Flavor Trade

Emulsion flavors have an established position in the flavor trade . . . Many new types of emulsifying and stabilizing agents are pressing for recognition and use

by MORRIS B. JACOBS, PH.D.

WITH the imposition of high taxes on pure alcohol used for beverage purposes and the prohibition of the use of specially denatured alcohol for the preparation of flavoring extracts, there has been a strong desire to avoid the cost attributable to the use of pure alcohol for the formulation of such extracts. There are several alternatives available for the preparation of flavors which avoid the necessity of using tax-paid alcohol. These are (1) the preparation of flavor solutions using other solvents than alcohol, namely, glycerol, propylene glycol, triacetin, ethyl ethers of gylcerol, and odorless, tasteless edible oils; (2) flavor emulsions; (3) flavor powders; and (4) flavor pastes; and (5) tablets.

Some years ago the employment of emulsifying and stabilizing agents for the preparation of emulsion flavors came into general use for products utilized both on a commercial scale and in the home. This development was probably a carry-over from the employment of these substances for the preparation of emulsions for medicinal use.

While emulsion flavors were originally prepared as a result of an effort to find substitutes for alcoholic flavoring extracts, they need no longer be considered in this category, for they have several marked advantages of their own. These are (1) emulsion flavors are much less expensive to prepare than alcoholic extracts since a principal component is water; (2) there is no loss of volatile solvent to be considered in such formulations; (3) they are generally prepared in more concentrated form, consequently they usually occupy less bulk than alcoholic extracts and the filling, packing and labor costs are lower (these factors are particularly important at the present time because of the difficult shipping and labor situation); (4) duplication and standardization of the product are simple; and (5) in addition, the loss by volatilization of many of the flavor components themselves is diminished.

There are several disadvantages of flavor emulsions which should be recognized. These are (1) since flavor emulsions do not contain alcohol, they do not have the extra aroma lift that alcohol gives; (2) if not prepared properly, they may settle out or separate; and (3) often it is imperative to incorporate some preservative to prevent spoilage, decomposition or separation.

TYPES OF EMULSIFYING AGENTS

Since the earliest use of emulsifying agents for the preparation of emulsion flavors was patterned after that of pharmaceutical use of these materials, it was only natural that practically the same types were used. Among the vegetable gums, the principal ones employed over three decades ago in the formulation of flavoring essences were acacia, tragacanth and karaya. Other materials employed fairly commonly were egg albumen, starch, dextrin (British gum), milk (powdered or condensed) or casein, itself, and gelatin.

With increased knowledge of the theory of emulsions and the production on a commercial scale of other emulsifying agents, the number of these agents used in the preparation of emulsions increased greatly. Some of these were the pectins, quince-seed mucilage, okra mucilage, locust-kernel and locust-bean gum, Irish-moss mucilage, agar, and many others.

In more recent years, certain emulsifying agents known for some

time, like algin and sodium alginate, have found increasing use, while other emulsifying agents, which one might consider entirely new, have been introduced. Among the latter are the demethoxylated pectins, methyl cellulose, celluloseglycolic acid and its salts, and a host of synthetic emulsifying agents like the various fatty acid esters of polyhydroxy alcohols (Emcols and Atlas types), mono- and di-glycerides of fatty acids and many others.

The possible use of acceptable nontoxic, edible, emulsifying agents in the preparation of emulsion flavors has broadened this field tremendously.

METHODS OF PREPARATION

The method of preparation of a flavor emulsion is important. This will depend upon the emulsifying agent used, and upon the equipment and the materials on hand. Often good results may be obtained by the most simple means. At other times more elaborate means and careful adherence to certain prescribed details are necessary to obtain a good result.

WATER-SOLUBLE GUMS

For instance, good results are often obtained by merely mixing the emulsifying agent with the component or components which will form the dispersed phase, that is, the essential oil or synthetic flavoring material, and then adding the continuous phase. An example of this type is given by De Groote.[1] Place 4 ounces of finely powdered gum acacia (gum arabic) in a dry dish, add 8 ounces of lemon oil and triturate thoroughly. Mix 4 ounces of glycerol with 4 ounces of water and then add this mixture to the gum and oil. Gentle stirring will be sufficient to make the emulsion.

This method is also applicable for emulsions in which the emulsifying agent is gum tragacanth. However, the ratios are substantially different. Thus for 10 ounces of lemon oil, 5 ounces of glycerol and 5 ounces of water only 0.15 ounces of gum tragacanth are necessary. More intense agitation is necessary for emulsification also, hence a homogenizer or colloid mill must be used in this instance. Place the gum in a dry mixer, add the oil and mix completely, taking care that none of the gum adheres to the sides of the mixer, add the glycerol-water mixture and emulsify.

Karaya or Indian gum may be used in a manner entirely analogous to that described for gum tragacanth for the ratios for emulsification are the same. However, the resultant emulsion may exhibit a jelly-like character.

In the preparation of flavor emulsions using gums like gum arabic, gum tragacanth or gum karaya, it is important to have the oil wet the emulsifying agent. If this is not done difficulty will be encountered in the preparation of the emulsion, for a mucilage made with these water-soluble gums will not disperse the oil readily.

The ratio of oil to emulsifying agent is often of great importance. Once a given ratio is found to give good results and it becomes desirable to reduce the flavoring content, it is preferable to replace part of the flavoring component by means of an odorless edible oil than to try to establish another statisfactory ratio. Thus, in the examples given above, using gum arabic, one fourth of the lemon oil may be replaced by cottonseed oil, or all of the lemon oil may be replaced by 1 ounce of terpeneless oil of orange and 7 ounces of cottonseed oil. More drastic measures also are needed if a given ratio is changed. Thus in the case of the following formula for a cloudy orange flavor emulsion, mixing with the aid of a colloid mill is necessary. Dissolve 16 ounces of gum acacia in 16 ounces of water by allowing to stand overnight. Filter the resultant mixture, if necessary. Add 0.75 ounces of orange oil and emulsify with the aid of a homogenizer.

PROTEIN EMULSIFYING AGENTS

When protein type emulsifying agents are used, the method of preparation depends upon the materials employed. Thus, in making a lemon flavor emulsion with sweetened evaporated milk, the glycerol component is added to the evaporated milk and the lemon oil is added to this mixture. Considerable agitation is necessary to make a stable emulsion. Equal weights of each component are required. However, if powdered whole milk is employed with tragacanth, then the procedure previously detailed for gum tragacanth alone is employed. About 0.3 ounce of powdered whole milk is used along with the ratios given. Instead of 0.3 ounce of whole milk powder, 0.05 ounce of edible egg albumen may be employed.

One of the disadvantages of the use of protein emulsifying agents is the formation of unpleasant odors if decomposition occurs. Therefore greater sanitary precautions must be observed in the manufacture of this type of flavor emulsion. While the glycerol has some inhibitory effect, it is not completely adequate and preservatives must often be incorporated into the emulsion.

PECTIN EMULSIONS

Generally when pectin is used as the emulsifying agent an aqueous mixture containing from 3 to 5 per cent of pectin is employed. It is well known that in jelly and jam manufacture about 65 per cent of sugar and a pH of about 3.3 are required for a stable gel. If a five per cent solution of pectin is slightly acidified, it should be possible to incorporate as much as 20 per cent of a flavor ester mixture to form a flavor emulsion. Such emulsions should be homogenized and protected from loss of water. They are stable and disperse readily when added to water.

A German patent has been granted for a mixture, in which pectin is a principal component, which is capable of forming stable emulsions. Dissolve a mixture of 4 to 5 parts of dry pectin, 1 part agar-agar, and 0.5 part gelatin in 100 parts of boiling water, cool, liquefy the gel that forms by vigorous agitation and pass through a colloid mill. This viscous mixture is capable of emulsifying oils in varying concentration.

Pectinic acids are defined, under the system of nomenclature[2] devised in 1943, as polygalacturonic acids containing more than a negligible proportion of methyl ester groups. These pectinic acids can form gels with sugar and acid if the concentrations are adequate or with certain metallic ions (principally calcium) if the methoxyl content is low enough. Low-methoxyl pectins have been prepared with methoxyl contents of 2.8 to 4 per cent and viscosities of 6 to 9 centipoises which are capable of producing good quality products in 1 per cent solu-

tion with fruit juices containing 35 per cent sugar at pH near 3 because of naturally adequate acidity and calcium requirements.[3] Proper manipulation of these products should enable one to produce adequate flavor emulsions.

METHYL CELLULOSE ETHER

Methyl cellulose has recently found some use as an emulsifying agent in pharmaceutical and food products. It is a fluffy white powder which is dispersible in cold water and is even dispersible at freezing temperature. Methyl cellulose (Hercules) contains from 17 to 32 per cent methoxyl groups and is produced in three viscosity types, low, medium and high. Methocel, (Dow methyl cellulose) is produced in 6 viscosity types identified by a number corresponding to the average viscosity in centipoises at 20° C. of a 2 per cent solution in water. Methyl cellulose ether will form mucilages only in cold water and will not disperse in hot water but since hot water assists in wetting out of the ether, it is best to prepare such mucilages by mixing the ether fibers with about half of the required amount of water at boiling temperature. Allow this mixture to soak for 20-30 minutes with some agitation and then add the remaining water, either as ice or cold water. Cool the mixture to room temperature and stir until smooth. However, methyl cellulose ether mucilages can be prepared most simply by merely stirring the ether in cold water at room temperature. The mucilage can then be incorporated into a flavor emulsion of the oil-in-water type. The mucilage is compatible with dilute acids containing acetic, citric or tartaric acid and it can be blended with colloidal aqueous solutions of casein, dextrin, water-dispersible gums, and starch, but phenols, tannins and salts of mineral acids, especially polybasic acids, will generally coagulate methyl cellulose ether.[4]

Carboxymethylcellulose, which is commonly called celluloseglycolic acid, and its salts are another of the group of cellulose ethers which have been suggested for use in foods. Sodium celluloseglycolate known under the names of Cellofas WFZ and Fondin, is a white, fluffy, hygroscopic solid which is soluble in water at all temperatures. It has been used extensively in Germany for there were 40 different preparations using this stabilizer on the market.

ALCOHOL ESTERS

It is not possible in this brief article to discuss the many mono- and di-glycerides of fatty acids or the fatty acid esters of the polyhydroxy alcohols which are capable of being used for the preparation of emulsion flavors. For example, glyceryl monolaurate of edible grade will form emulsions with methyl salicylate in the ratio: methyl salicylate 5, glyceryl monolaurate 1, and water 4. The monoglyceride is dissolved in the methyl salicylate and the water is added while stirring vigorously.

As another example we may take mannitan laurate (Atlas G-630). This substance is a viscous oil. It is nonhygroscopic, has a faint caramel odor and a bitter after-taste of lauric acid. It is nontoxic and edible and is capable of forming oil-in-water emulsions with essential oils.

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Flavored Notes

The provisions of the Federal Food, Drug and Cosmetic Act that are most generally applicable to flavoring extracts and flavors are found in sections 402 and 403 (a), (c), (d), (e), (f), (i) and (k). Also sections 201 (k) to (n) and 303 (c) with the corresponding regulations should be taken into consideration. With respect to the formulation of synthetic, artificial and imitation flavors an additional section to be noted is section 406.

* * *

The Food and Drug Administration considers that caramel is an artificial color made by the artifice of partially breaking down sugar.

* * *

It is a good idea to make certain that a given flavor is not going to be used as a base for another flavor before adding a color. The second flavor may not have the same color association as the first flavor. For instance, if a raspberry essence is to be used to give nuance to a lime flavor, and the raspberry essence has already been colored red, it cannot be used for this purpose because the red and green color of the lime flavor will clash.—*M. B. J.*

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Survey of Recent Cosmetic Patents

Registered agent before the U. S. Patent Office discusses U. S. and foreign patents . . . Any inquiries relating to patents and trade marks will be met with prompt attention . . .

by I. J. FELLNER, PH.D.

Compact. Max Rappaport, New York, N. Y. *U. S. 2,373,852, April 17, 1945.* The compact comprises a body member and a cover member, each having shallow channelled wooden sections to provide a web and flanges with the grain of the wood substantially parallel to the flanges. The channelled sections are of such a form and size as to permit the webs to contact each in cross grained position with the flanges of each member engaging the edges of the other member to compactly nest the members. The body member has extensions to each of the edges to receive the flanges of the cover, providing a pair of ears to one side of said body member and pintles directed through said ears and the flanges of the cover member whereby said cover member may be pivotally mounted in respect of said body member.

Antioxidant. To the U. S. Secretary of Agriculture. *U. S. 2,373,192, April 10, 1945.* Oxidative rancidity is prevented by the addition of beta-gamma-dimethyl-alpha-delta-bis (3,4-dihydroxyphenyl) butane.

Thickening Agent. Claude Wickard, Secretary of the U. S. Department of Agriculture. *U. S. 2,373,729, April 17, 1945.* An aqueous medium thickening and congealing agent comprises a dry, powdered mixture of pectin, pectase and a water soluble salt of a polyvalent metal.

Non fatty ointment base. To A. Wander A.G., Bern, Switzerland. *Swiss 223,166, Jan. 4, 1943.* A mixture of a colloidal dispersion of aluminum hydroxide with a vegetable gel, e.g., algae mucilage, adjusted to a pH of 6.5.

Insecticide. Socony Vacuum Oil Co., New York, N. Y. *U. S. 2,374,387, April 24, 1945.* An insecticide composition containing a material derived from a petroleum fraction by a multiple pass cracking in the presence of adsorptive contact mass material having an initial boiling point of the order of 500 deg. F. and a mid boiling point of at least 550 deg. F. and not over about 750 deg. F. and having a killing power when present in a concentration of 5 per cent in a non-toxic insecticide base oil as measured by the Official Peet Grady Test of at least 16 per cent greater than the official test insecticide under comparable conditions.

Eyebrow Pencil. I. G. Farbenindustrie A. G., Frankfort on Main, Germany. *German 740,314, Oct. 19, 1943.* In a molten mixture of 10 parts of α-oxystearic acid, 3 parts of paraffine oil and 3 parts of paraffine (melting point 42 to 46 deg. F. are dissolved 2 parts of Sudan black B. N. The pencil base may also be utilized, with appropriate colors, for the preparation of lipsticks, compacts and similar articles.

Detergent. Colgate-Palmolive-Peet Company, Jersey City. *Canadian 426,101, March 13, 1945.* A detergent is prepared by treating a fraction of coal tar oil having a boiling point of 200 deg. to 450 deg. C. in liquid sulphur dioxide solution with a sulphonating agent for a period of not more than 5 minutes at subatmospheric temperatures, arresting the reaction by adding to the mixture a quantity of cold water and neutralizing the mass.

Cosmetic Preparation. The Armand Company, Des Moines, Iowa. *U. S. 2,373,933, April 17, 1945.* The preparation consists of finely divided particles of body powder encased in a film formed of bentonite and methylcellulose.

Cream. I. G. Farbenindustrie A. G., Frankfort on Main, Germany. *Swiss 225,456,* May 1, 1943. 1 Mol ethyleneglycol is esterified with ½ Mol adipic acid. Equal parts of the resulting ester (melting point 41 deg. F.) and water are mixed into a cream which can easily be washed off.

Hand soap. Jeronimo Diaz Compain, Central Senado, Cuba. *U. S. 2,373,460, April 10, 1945.* A hand soap comprising a water soluble soap and bagasse ashes in proportions ranging from about 1:2 to 2:1, said bagasse ashes being in finely divided form, having an alkali metal oxide content of about 4.4 per cent by weight and being composed of a lighter fraction which separates from a heavier fraction of ash upon burning bagasse in a furnace.

Perfume materials. To Lyndhurst Chemical Corp. of New York. *U. S. 2,373,568, April 10, 1945.* A perfume material consisting of the reaction product of acetone with a compound formed through the Diels-Adler mechanism by heating methacroleine with a conjugated diene such as 4-methylpentadiene-1,3 and cyclopentadiene.

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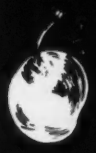
IMITATION CHERRY  NO. 105

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by ARNOLD KRUCKMAN

More alcohol may be had by the toiletries, cosmetics and flavors industries during July. There is definite word here about the increase, but at this writing it is not known exactly how much industrial alcohol will be available. There is also a hint that there may be a greater supply of 91% isopropyl alcohol, but there is no specific suggestion in regard to quantity. The revocation of Order L-348, announced in this Letter last month, for routine internal reasons of office procedure, was delayed until June 25th. It became effective July 1, and, as forecast in these columns, revoked all controls over delivery, receipt, and processing of imported cane alcohol. Schedule 71, covering Ethyl Alcohol, in Order M-300, the general chemicals allocation order, was formally amended to eliminate reference to the prohibitions in L-348. Many users of the cane alcohol may again send ingredients to Caribbean exporters and have the exporters blend a negligible spot of the ingredients in the alcohol. The users may then import the result under a non-alcohol classification.

ALCOHOL PICTURE BRIGHT

Alcohol is expected to be more plentiful for an indefinite period of time. It is understood the alcohol beverage holiday for whisky distillers will be extended. For the time being, requirements for synthetic rubber have been reduced, the lend-lease needs are less, and the immediate military needs have been cut. All these factors make the immediate prospects for industrial users brighter. It would be wise, however, not to assume this is a permanent condition.

THE LANOLIN PICTURE

There also is confidence in WPB that there will be a release of some lanolin during July. It is possible the announcement of the quantity will be made during the early part of July. This relaxation also is regarded as primarily a temporary condition. Lanolin will be required for direct war uses so long as the war moves at increasing velocity. The present indications are that the climacteric of offense and attack will not come until next year. It takes from 90 to 180 days to haul the materials and men across the Pacific. And it takes huge numbers of ships.

Some ships we have used are now in use by our Allies. Other ships, which we have obtained, are in process of reconditioning. When all these various implements of war are in complete operation, the pipelines will be carrying the war material into the Pacific at top capacity. The utmost hurricane of war is ahead.

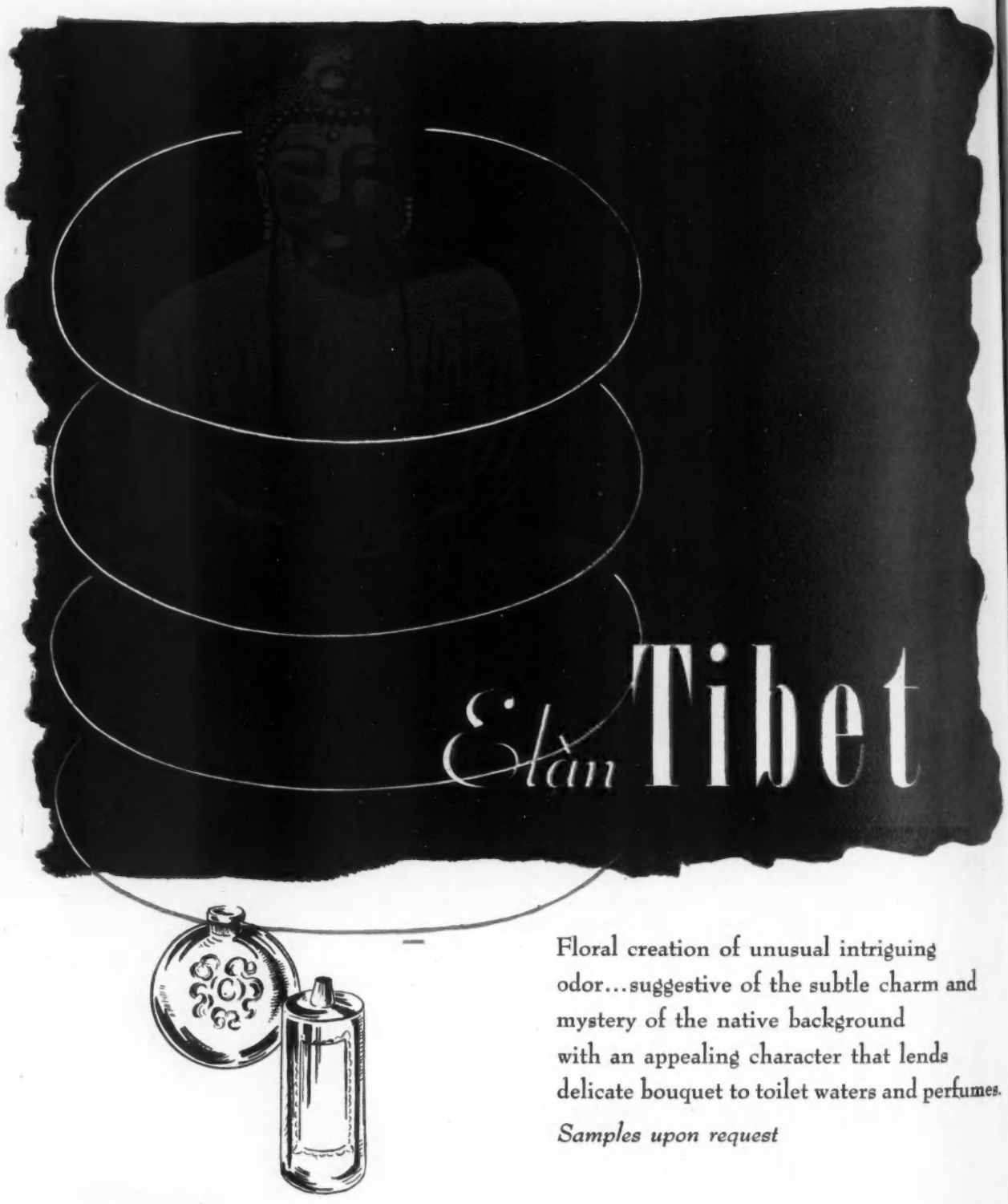
Castor oil was placed under complete allocation by July 1 by WFO 137. The Order forbids use of castor oil, or delivery, unless authorized by WFA. The Order covers use of any supplies on hand. The controls are explained by WFA as necessary to insure adequate supplies for military and essential civilian requirements. The present castor bean crop is much smaller than the crops for the past two years. The new Order is similar to WFO 32 which placed tight control on castor oil during 1943. The present need is reported to spring from increased calls from producers of synthetic rubber, resins, coated fabrics, and various war-used industrial compounds. Users of the oil must apply for permission to accept delivery or to use the oil on Forms 477 and 478, which may be obtained from the Fats and Oils Branch, Office of Marketing Services, WFA, Washington 25, D. C.

The whole fats and oils picture has grown steadily darker since last October. Civilian supplies for 1945 will be at the lowest level in many years. The supply for civilian soap this year is expected to be from 10 to 15 percent less than in 1944, at about the same level as the average between 1935-39. European demand is expected to be extremely high until late in 1946.

The domestic supply for all uses in America is estimated progressively tight until the summer of 1946. No relief is expected from the Philippines until late next year or early 1947. OPA reports a sharp cut in some allocations will be put into effect during the present (third) quarter. Various vegetable oils, used in the Argentine for fuel, will be exchanged for conventional fuel oils of like heat content to be supplied by the United States. WPB declined to place carnauba wax imports under license and quota restrictions imposed by Order M-63. The present ceiling prices, two or three times the peacetime levels, will be continued.

CONTAINERS IN SHORT SUPPLY

Containers of all kinds were listed by WPB among 101 items and



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groups of items regarded as in very short supply, and as potential bottlenecks in war-supporting programs or high urgency civilian programs. Military needs for containerboard during the present quarter have increased over 30% because of transshipment of goods from Europe to the Pacific and elsewhere.

WPB suggested there might be an improvement in the supply for civilian needs during the fourth quarter. This improvement would, naturally, include the corrugated containers used by the toiletries and cosmetics industry. Fiber containers acquired from Government surplus are no longer under control of Order L-317, except "V" and "W" boxes.

A meeting of the Combined Raw Materials Board, with representatives from the U. S., U. K., Canada, Belgium, Denmark, France, Holland, and Norway, is scheduled to take place during the summer to survey the world paperboard situation. It is ominous, however, that a formal discussion in July suggested there is apt to be a deficit. Here in Washington the paper container situation is regarded generally as bad, and not offering much hope of early solution. Meanwhile, OPA has issued a warning that it will check sales at prices above the ceiling. Past incidents indicate that the purchaser as well as the seller may be penalized.

Order L-239 which controls manufacture of folding and set-up boxes apparently will not be revoked for some time. The manufacturers themselves unanimously voted against revocation at its last Industry Advisory Committee meeting here. WPB suggested that over-all military cutbacks in prospect should release some boxes to *essential* civilian products late in the year.

Officials of WPB generally feel that plastics will offer the most immediate relief to those who are short of closures. Apparently it is held that when the war pressure is relaxed upon plastics fabricators, that they will quickly turn to the production of closures. Plastics fabricators have practically no reconversion problems. They are able to adjust their molds with little delay to new products. Plastics are regarded as the source of the majority of the bulk of postwar closures. At present plastics are still under stiff control, either because the plastics fabricators are obliged to make components of war equipment, or because the raw materials, which form the chemical bases of plastics, are necessary for other direct war requirements.

Cutbacks in Army contracts have made some lead available for the manufacture of 3,000,000 collapsible tubes to be used to pack four groups of items, which were credited to the second quarter. Direction 2, Order M-115, published June 12, permitted increases of lead quotas for tubes for packing of dental creams from 20 to 25% of the amount used in the corresponding quarter of 1944. No announcements have been made which give any indication of the additional material which may be available during the fourth quarter. There is said to be abundant aluminum for the manufacture of closures, but there is practically no machinery to fabricate the aluminum.

SICILIAN LEMON AND BERGAMOT OIL

FEA announced recently it had procured an unnamed quantity of lemon oil and bergamot in Sicily which was enroute to the United States. The lemon oil is destined for the Army, and it is presumed the bergamot will be sold to the industry through the usual historic importing distribution channels. The material was purchased on behalf of the Allied Commission by the U. S. Commercial Co. WFA has removed all restrictions on purchases by foreign governments of agricultural commodities not under formal domestic allocation in the United States, after July 1. There is considerable interest in the detailed list of commodities under allocation, which the WFA is expected to issue in the near future. There have been so many allocations, revocations, and reallocations, that it has not been easy to keep in step with the changes. It is probable the new program of export freedom will have a definite interest to the toiletries, cosmetics, and flavors industries, when more details are available.

There is much interest in Washington about the attitude of the new Secretary of Agriculture, Clinton Anderson, towards FEA. Anderson is now the head of WFA. In the past, WFA, as controlling agent for food stuffs, often was in underground conflict with FEA, which controlled some phases of foreign transactions affecting food and non-food materials. This strained situation has been well known in Washington, as well as in other Capitals. The complicated situation also involved OPA, the Office of Economic Stabilization, and the Office of War Mobilization and Reconversion. In pre-Truman days it was generally understood that many of the tangles and differences were settled by officials at the White House. It has been the earnest intent of the House of Representatives to put the final power over food and allied products in the hands of the new head of WFA. Truman made no secret of his hope that this would happen. But by some swift legerdemain in conferences during the closing days of June, the exact nature of which are not yet clear, the influence of Reconversion Administrator Vinson with the support of OPA Bowles and Economic Stabilizer Davis, stripped the broad authority from Anderson, and secured the passage of an OPA bill which leaves Anderson exactly where Marvin Jones was, and where all other WFA heads and Agricultural Secretaries have been. Anderson does not have the powers the Congress generally intended him to have, and he cannot check OPA or any other agency which wishes to have a hand in the food set-up.

The details will undoubtedly come out soon. In the meantime it is expected there will be another of those backstage tugs of war; and it is anticipated the President will settle the first clear-cut issue in favor of Anderson. The situation is of interest to the toiletries and cosmetic industry not only because any OPA problem is of interest to all taxpayers, but because the power and authority of the WFA and the Department of Agriculture affects many problems in which the industry is vitally concorned.

RETURNING VETERANS

It is reasonable to presume the toiletries and cosmetic industry has contributed the average number of men and women to the Services. Those now returning will increasingly drop in to get their jobs back. Presently the men brought back from Europe are being held in camps while they are outfitted with new habiliments in order that they may look spick and span when they go home on their leaves. Most of the clothes they brought back were badly

battle worn. And it may interest this industry to know that one of the most perplexing problems that has confronted the responsible officers at the camps is to find barbers in sufficient numbers to give the men hair cuts and the other services they require. When the men go home, it is estimated two out of every three hunt up their employers to fix up their return to the old job. The women do the same. Apparently the problem involved has not yet struck home to most of the employers, including those of the toiletries and cosmetic industry.

Under the Selective Service law the veteran, male or female, who wants the job, is entitled to it with all the seniority that has accrued during the months or years since it was vacated. Recent happenings stress the problem must be faced now. At least five cases are on their way to the Supreme Court to determine the seniority question. In one case recently, involving a firm which is concerned with some aspects of toiletries and cosmetics, the WLB ruled top senority in lay-off to four union officials with the provision that they do not have top seniority if the ruling is in contravention of the provisions and interpretations of the Selective Service Act. The firm employs 120 people; it expects 40 veterans to seek reinstatement. WLB has ruled the top seniority of union officials will not over-ride the super-seniority of the veterans if the Selective Service Act ultimately is construed to provide super-seniority for veterans. WLB emphasized this ruling would apply regardless of the relative seniority of veterans and union officials or others. WLB made clear, if necessary, the veterans would be entitled to displace others when the action is necessary to restore the veterans to their jobs.

INDUSTRY REPORT

At the personal instigation of Secretary Wallace, the Industry Monthly Reports of the Department of Commerce, issued from the Bureau of Foreign and Domestic Commerce, have been revived. They are studies of the national and international aspects of each major industry. Plastics, Leather, Steel, and other industries already have been surveyed. Lester A. Barber, the toiletries and cosmetics expert of the Bureau of Foreign and Domestic Commerce, has been commissioned to write a study of the industry. To this end he has asked the cooperation of the various elements of the industry in formulating questionnaires and in securing answers which may be broken down to secure the details which have been suggested by Secretary Wallace. The Bureau of the Census has legal power to insist upon obtaining certain information for its studies. It is assumed the toiletries and cosmetics industry, like other industries, will provide the data without the intercession of Census. It is intended the information assembled, in unidentifiable statistical form, will be published eventually either monthly, bi-monthly, or quarterly. The study of the various major parts of the economy of the United States, from a domestic angle as well as from the export angle, is a subject of lively interest to President Truman.

JASMINE OIL RELEASED

A shipment of jasmine oil, long frozen in Portugal, finally was released through intercession of the United States with both Portugal and France. It originated in France, and was held in Portugal during the days of the German occupation. It has now been delivered to the American consignee.

Dr. George W. Fiero, who was Chief of the Pharmaceutical, Insecticide and Cosmetics Chemicals Unit of the OCR, retired in June to join the Daggett and Ramsdell Division of the Standard Oil Company of New Jersey, with headquarters at 216 West 14th Street, in New York. Dr. Fiero also resigned his post as associate professor of materia medica in the School of Pharmacy at the University of Buffalo. He was on leave of absence during his service in Government the past three years. He is succeeded by Dr. Louis W. Busse, a member of the unusual organization created in OCR by Division Director George W. Hamill.

Rep. Fritz Lanham, Texas, who has fought seven years to secure enactment of a modern code of trademark laws, has again introduced a bill, HR 3424, which is expected to pass this Congress, despite the opposition of Assistant Attorney Wendell Berge, who heads the Anti-Trust Division in the Department of Justice. The new bill would permit the assignment of a trade-mark without thereby assigning the business which is the owner.

An OPA Order issued by the Regional Director in Alaska sets up price ceilings for sachet pillows to be sold at wholesale by Myra Peters, the manufacturer, and by any retailer in Alaska. The prices, in various styles, range from $12 to $22.50 per dozen, and from $1.50 to $2.75 each.

Letter to the Editor

Dear Mr. Wright:

It was particularly pleasing to read two very flattering references to the Toilet Goods Association and industry in the current issue—the first your editorial approval of the fine report issued by Mr. Mayhem, executive vice-president, and the other in Mr. Kruckman's column, "Washington Panorama."

Even though we have been told that our standing in Washington and elsewhere has improved immeasurably, it is gratifying to learn from other sources that such is the case. Equally complimentary is the statement that "it should also be pleasing to the industry to realize that as a whole it probably gave less trouble and bother to the harassed people in WPB and other agencies than almost any other industry in the civilian economy." Like good children, we have, these past few years, followed the old adage—"to be seen but not heard." We are proud of the fact that we did not once during the entire war period ask for any special dispensations, but merely requested our share of whatever was available after the needs of the war effort were first considered. To quote a speaker who addressed us a few years ago, the industry has "finally come of age." It will be the Association's constant aim to further enhance the dignity of our calling and to improve wherever possible its high standing. Continued support from our very substantial membership will enable us to fulfill these pledges.

Again our thanks for your words of commendation. We are glad to have your support too. With kind regards, we remain,

Sincerely yours,

H. L. Brooks,
President

NEW PRODUCTS AND PROCESSES

New Oil Paint

The Wilbur & Williams Paint Corp. has announced a new product called Mason-Cote, which the company states has the unusual feature of going over damp brick, concrete, cement, stucco, cinder block, etc. It is also said to have exceptional adhesion and is unaffected by temperature extremes.

Mason-Cote weathers white because it is self-cleaning and although it is an oil paint, is claimed to be resistant to lime.

Reconversion Inventory Kit

To facilitate quick, easy reconversion inventories of industry's most widely used general purpose equipment, the Allis-Chalmers Mfg. Co. announces that it will soon begin to distribute a newly prepared reconversion inventory kit, covering centrifugal pumps, V-belt drives and electric motors. The kit will enable the user to determine the exact condition of the equipment.

Synthetic Resin Adhesive

The Resyn Division of National Adhesives has developed a solvent-free synthetic resin emulsion for adhering labels to "V" board, wood, and black or galvanized iron, and which also serves as a waterproof label overcovering. The adhesive is supplied in cold liquid form, and can be diluted with water. Its makers claim that when applied as an overcovering, the emulsion "breaks" immediately, depositing a water-proof, transparent resin film on the surface. It neither clouds nor smears printing inks and is highly resistant to abrasives. It is said to be fast setting and dries tack-free, even under high humidity conditions. It may be applied either by brush or gumming machine.

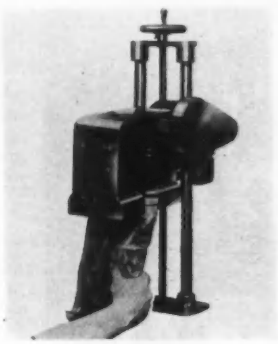
Roofing Paint

The A. C. Horn Co. announces a new, tested roofing paint, composed of asphalt and powdered aluminum. The product is applied to the roof in one operation from a single container. Some separation takes place so that the asphalt sinks to the bottom of the coating and the aluminum stays on the surface to act as a reflector of sun rays and ultra-violet rays.

Its makers state that the product, called Hornlume, has shown a difference in temperature of 22 degrees inside and outside roofs.

Heat Sealer

The Codie-Kay Co. announced a new packaging machine, the C-K Heat Sealer, a rotary-type, crimp heat-sealer. It can be fed by hand or conveyor, and it can accommodate bag sizes from 1½" to 15" in height. A dial controls temperatures up to 700° F. All working mechanisms



Heat Sealer

are equipped with precision ball bearings. Brass rollers are within .001 inch in alignment, and are adjustable to any thickness. There are no brushes or commutator to wear out. Moving parts are guarded. The machine operates on 110 volt alternating current.

New Catalogs

George Lueders & Co., New York, N. Y., has issued its new price catalog. Copies are available free of charge.

The 83rd edition of the Custom House Guide has just been published. This 1522 page volume contains an alphabetical index of 30,000 commodities, as well as Customs regulations; the Internal Revenue Code; new information on port activities, facilities and changes; and a directory for shippers and those in allied trades. A monthly supplement is published to keep the Guide up-to-date. The price is $20.00 plus postage. This includes the monthly bulletin as well as a loose-leaf binder.

The new catalog of W. J. Bush & Co., New York, N. Y., is now available. Copies may be obtained without cost.

Book Reviews

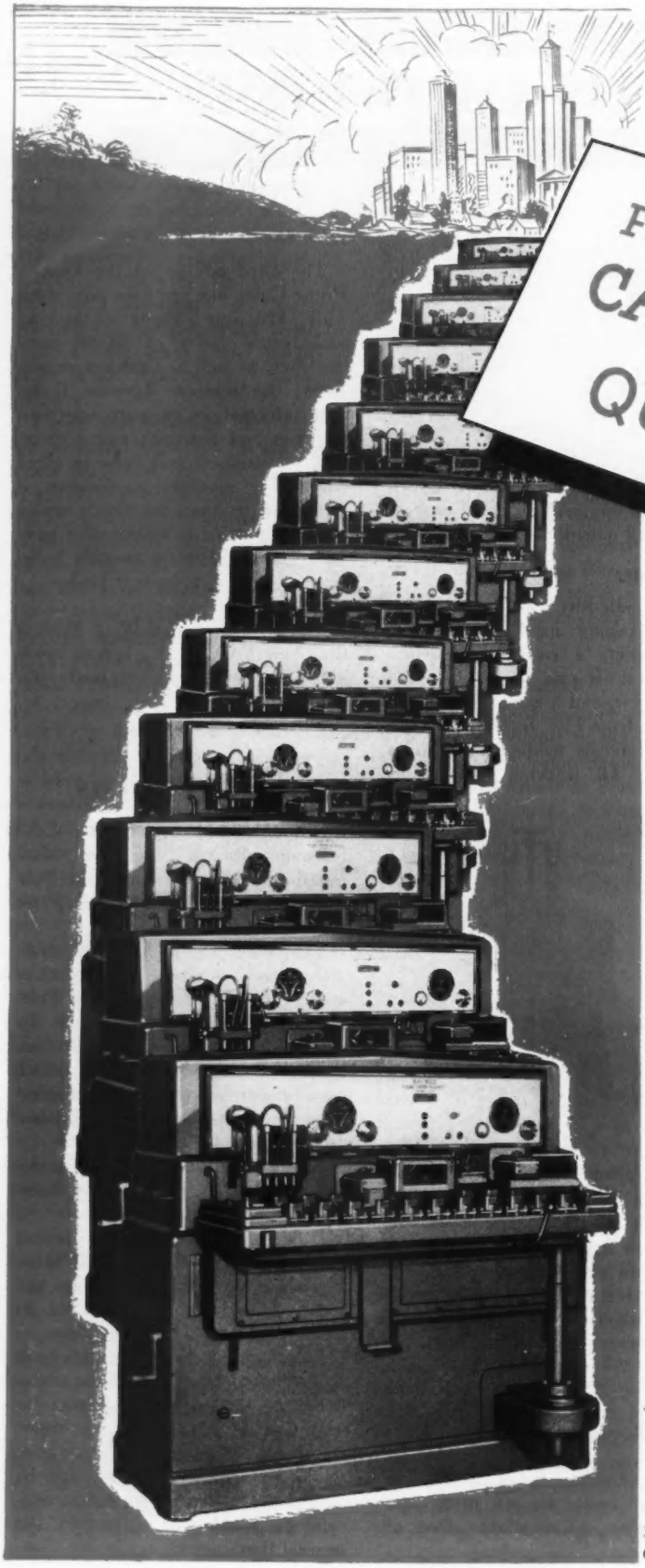
CHEMICAL MACHINERY, Emil Raymond Riegel. 583 pages, illustrated and indexed. Reinhold Publishing Corp., New York, N. Y. Price $5.00. Published 1944.

This book contains useful information on apparatus and devices used in the chemical industries. Preference has been given to those devices which have general application. Devices discussed are those which may be purchased from a manufacturer, or erected on the site, laboratory equipment is not included.

The treatment is primarily descriptive, liberally supplemented by drawings and photographs.

Each group of related devices forms a chapter. An example is selected for each type of device and followed long enough to make its construction and operation clear.

The material obtained in this book was collected directly from the manufacturers, in conversations from the engineers in charge, or by correspondence, supplemented by visits to shops and chemical plants, and by assiduous study of manufacturers' catalogs, booklets of instruction, and general literature.



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Fills tubes perfectly, and seals them perfectly. Results: increased production, self-liquidating cost, a further dividend-paying investment through savings in length of the metal tubes.

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AMONG OUR FRIENDS

Raymond Geist—Public Servant

During the rise to power of the National Socialist party in Germany, the prestige and standing of the United States, which had reached a high point partially because of the billions of dollars which we had poured into the rehabilitation of that country, declined. Until, as the Nazi power approached full strength, we became known as "Uncle Shylock."

As a consequence, Berlin became one of the most difficult posts in the State Department's portfolio. It called for both delicacy and firmness. As embassy secretary, charge d'affaires and consul general, the man in charge was responsible for the reports which provided this country with information which was the basis for formulating foreign policy; he was responsible for the American mission when Germany was creating the Bohemian and Czecho-Slovakian protectorates; and possibly most important, he was responsible for the application of policies to Americans and American interests.

This heavy load fell on the capable shoulders of Raymond H. Geist. Through his ability he became perhaps the best known American official in Germany.

Americans in Germany sometimes landed behind bars, from causes ranging from misplaced exuberance to opposition to the Nazi party. Whatever the charge, Mr. Geist saw to a fair trial. One of his most difficult problems was that having to do with members of the Jewish race. Protecting American business interests was also knotty. Passing on visas to immigrate to this country was wearying. During the time from June 30, 1933, to April 30, 1939, 286,210 applications were made and only 74,789 visas were granted.

The successful prosecution of such a job called for a man of many talents. Mr. Geist proved to be equal to the demands made upon him. He had a Germanic background in that his grandfather came to this country in the pursuit of freedom in 1848. His education, which includes a Ph.D., showed a specialization in Germanic philology.

His introduction to diplomacy came when he became attached to the staff of Admiral Benson, at the

Raymond H. Geist

Paris Peace conference, and was placed in charge of translations for the naval staff. In 1919 he was sent to Vienna as American charge d'affaires. In 1922, after having spent two years as instructor in English at Harvard, he went to Buenos Aires as vice consul. After that post, and one year spent at Montevideo, he went to Alexandria where he stayed until 1929. In that year he was transferred to Berlin where he has functioned so ably.

Upon Mr. Geist's recall to Washington, due to the severance of relations with Germany, he was made Chief of the Division of Foreign Commercial Affairs, State Department. Under his jurisdiction came the manifold problems in the all-embracing sphere of foreign commercial affairs.

The essential oil industry was deeply affected by the fact that imports from abroad would either be cut off or be curtailed, due to lack of shipping. Naturally this condition was of vital importance to the entire industry. Shipments from France piled up at Bermuda and shipments from other foreign sources became almost impossible, some landing in Prize Courts at various ports.

The industry contacted Mr. Geist; laid the whole picture before him and found him not only sympathetic, but extremely helpful. He assisted materially in clearing up many shipping situations, sometimes by actions of his own and in other cases by giving the industry advice and counsel as to where to ask for assistance. He was always approachable, always took a broad view, and placed the interests of the American economy as secondary only to the war effort.

His long experience and demonstrated ability led the State Department to place him in charge of Communications and Records in the State Department, where he did a stupendous job of organization in this highly confidential and complicated department of communications. This work has been exceedingly arduous and entailed a varied force of competent employees with selected qualifications and training.

The several years Mr. Geist has been in this department have now been recognized by the Administration, and on July 1, 1945, he became Consul at the Embassy in Mexico City, where his right experience and broad knowledge may be utilized.

Our immediate neighboring country to the south, Mexico, is increasingly important, and its future development is bound to be entwined with the coming reconversion era in the Atlantic states, and the much hoped for closer cooperation of not only Mexico but of all the South American countries as well.

This publication, speaking for the industry, extends its thanks to Mr. Geist for his cooperative services extended to us in the past, and wishes him God Speed and good health in his highly important new assignment.

▸ Albert E. Mullen, manager of the Apli Division of Allied Products, Inc., New York, N. Y., has a new fishing partner he may really depend upon. He is a bit young just at present but Mr. Mullen reckons that he can be developed in time. He is a well built lad and seems to have a good disposition, a mass of blonde curls and blue eyes and his ringside weight is 6½ lb. While Mr. Mullen

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. . . A really outstanding Oil Jasmine, with the Jasmonene base. Use as is, or add it to your own jasmine preparation and thus obtain the true jasmine note.

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has known his new companion, Frank Mortimer Thompson, Jr., only since June 27 when he arrived at the New Rochelle (N. Y.) hospital, he has known his mother for a long time because she, Mrs. Edith J. Thompson, is his daughter. Mr. Mullen, incidentally, who has been confined to his home for several months following a heart attack, is now well on the road to recovery.

▸ Stuart O. Fiedler has joined the staff of Bjorksten Laboratories, Chicago, Ill., as research associate. He was for several years connected with C. F. Burgess Laboratories as research chemical engineer. Subsequently, Mr. Fiedler for a period of fifteen years was research chemist with E. I. du Pont de Nemours & Co., which he left to become technical supervisor of the protein plant of the Drackett Co. Later he was supervisor of a research division on the Quaker Chemical Products Corp.

Stuart O. Fiedler

▸ Vivienne Carson has joined Pinaud, Inc., New York, N. Y., as director of merchandising and publicity for department stores. Miss Carson has been associated with Helena Rubinstein, Inc., for the past fourteen years. She was active in sales promotion work in various parts of the United States and in Canada.

▸ Vernon Strobl, son of E. J. Strobl of Albert Verley & Co., New York, N. Y., was married recently in Lowell, Mass., to Dolores Hiscoe. The bride's brother, Bonta Hisco, was best man. After the wedding, which was attended by 600 persons, the young couple honeymooned in Duxbury, Mass. They will reside in New York while Mr. Strobl finishes his studies in medicine.

▸ William Lakritz, vice-president of Florasynth Laboratories, Inc., New York, N. Y., took a few hours off recently while in Miami, Fla., after a most active business trip throughout the Southern states and to a number of cities in Florida, for a fishing jaunt. The results are indicated in the accompanying photograph. Mr. Lakritz's catch was a 92-inch, 67-pound sail fish.

William Lakritz and prize

▸ Georges Acuna, Van Dyk & Co., Belleville, N. J., is enroute for Cuba, Santa Domingo, Haiti, Panama, Mexico and all Central American countries to visit all agents in those territories on behalf of his company.

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Obituary

Dragoi Batzouroff

Dragoi Batzouroff, senior partner of the firm of Batzouroff & Co., the largest distillers of Essence of Rose in Bulgaria, died on June 18, at the New York Hospital, after a brief illness. Mr. Batzouroff was intimately known to the perfumery trade in this country. For more than twenty-five years he made an annual visit to his representatives, George Lueders & Co., New York, N. Y., and it was on one of such occasions he arrived here in November, 1939, intending to remain for about six weeks. Subsequent developments made it impossible for him to return to Europe. Due to the war conditions, Mr. Batzouroff unfortunately had been without communication from his family for a period of more than two years. This caused him considerable worry and grieved him very much. At the same time, on many occasions, he expressed his gratitude that it was his good fortune to be in our friendly country during his term of exile.

Mr. Batzouroff, for over thirty years, was a resident of Paris, where he looked after the vast interests of his company. His personal affairs in the U. S. A. have always been looked after by Edward V. Killeen, of George Lueders & Co., who, in an interview, stated he had lost his best friend in the death of Mr. Batzouroff. Mr. Killeen mentioned that for fifteen consecutive years Mr. Batzouroff had dined at his home on Thanksgiving Day and for many years, Mr. Killeen visited Mr. Batzouroff in Europe, in the late Spring and early Summer, touring with him in different parts of the continent. There was an unusual friendship between Messrs. Batzouroff and Killeen.

Mr. Batzouroff was unmarried. He is survived by one brother and three sisters, all residents of Bulgaria.

Frank H. Sedgwick

Frank H. Sedgwick died June 11, at Luccombe, in the Isle of Wight. He was known affectionately to a wide circle of friends throughout the perfumery and cosmetic industry as a man of enthusiasm, industry and kindness. Former Polytechnic lecturer and Parliamentary candidate, perfumer, consulting chemist and author, he numbered an indefatigable versatility among his many other admirable qualities.

Charles J. Eusey

Captain Charles J. Eusey lost his life while leading his company of Marine Paratroopers in the invasion of Iwo Jima. His father, Merritt V. Eusey, is assistant to the president of Florasynth Laboratories, Inc., at the Los Angeles, Calif., office. Two of Captain Eusey's brothers remain in the service.

Turner F. Currens

Turner F. Currens, formerly vice-president and director of Norwich Pharmacal Co., Norwich, N. Y., died recently. Upon his retirement from Norwich he had become an official of the War Production Board until late in 1943. He is survived by his wife, Marion B., and a brother, Warren.

Harry W. Ferguson

Harry W. Ferguson died June 16, at the age of sixty-five. He was president of Heine & Co., New York, N. Y.

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News and events

Louis Amic in U. S. for French Supply Mission—Grasse Situation

Louis Amic, director of Roure Bertrand Fils and Justin Dupont of Grasse and Argenteuil, France, who is recognized as a leader in the essential oil and aromatic chemical industries, arrived in the United States by Army transport plane June 10. Almost immediately thereafter he left for Washington to undertake important work on behalf of the French Supply Mission for whom he is voluntarily serving as an expert. This work will demand practically all of his time until he flies back to France July 10. As the trip was made solely for this purpose, Mr. Amic was unable to devote any of his time to business associated with the French concern with which he is affiliated.

Louis Amic

As the first representative from France familiar with the essential oil and its allied industries abroad to visit the United States since the war, Mr. Amic did much to dispel conflicting reports that have reached this country in the last few years. In the first place, Grasse did not suffer at all from the war. Flower growing was continued and small stocks of flowers were put aside by French growers and essential oil houses with the purpose of resuming normal production as soon as it was possible to reopen associations with their American friends. All French essential oil houses are eager to resume their former relations with America and in view of their preparations this seems likely to be done on a normal scale much sooner than has hitherto been expected.

Crops of flowers this year will be below normal due to weather conditions. A heavy frost early in May seriously affected the rose crop and may have seriously damaged the jasmin crop. There is a substantial amount of lavender and lavandin on hand. Substantial quantities of oils from the French colonies are expected soon; and French manufacturers hope to be able to resume the manufacture of fine synthetic chemicals before long. The chief problems are transportation and the supply of fuel which depends on it. Shortages of fats and solvents are less serious than has been generally supposed. Mr. Amic hopes to visit the United States again before long when he will have the opportunity to visit friends and renew acquaintances in various parts of the country.

Attack on Hormone Cosmetics by Medical Assn. Likely to Be Met

The recent attack on skin rejuvenation claims for hormone creams in particular and cosmetics in general by the Council on Pharmacy and Chemistry of the American Medical Assn. is likely to be met by manufacturers of such creams who have already held several informal meetings and who may form an association to present a united front to detractors. Scientific data based on extensive clinical and pharmacologic investigations to support their claims is said to be available.

The attack broadly hinted that creams containing estrogens might cause cancer and may disrupt normal body functions. Beyond that manufacturers were criticized for not calling on the Council to rule on the effectiveness and safety of estrogenic hormone creams which it claims are offered without proper scientific investigation. Viewing hormone cosmetics as "drugs" the A. M. A. Council said that it has not received satisfactory evidence on absorption, sensitivity, systemic effects, local effect, toxicity, relation of age and other factors. It concluded: "Until these and other studies have been completed and found reproducible by unbiased investigators there can be little reason to indulge in the promiscuous sale of hormone containing cosmetics."

Observers believe that if there had been a single authenticated case of cancer associated with estrogenic creams the A. M. A. council would have mentioned it. No such case has been reported although the creams have been used by thousands of women during the past decade. During a longer period the therapeutic use of estrogens has grown enormously and the medical profession has made extensive use of hormones in dosages many times stronger than the potencies found in cosmetics.

ADVERTISEMENT—*This entire page is a paid advertisement.* *Prepared Monthly by U. S. Industrial Chemicals, Inc.*

U.S.I. CHEMICAL NEWS

July ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

Resin-Plasticizer for Urea and Melamine Pinch Hits for Alkyds

Aroplaz 1311 Proves Practical Substitute for Certain Scarce Phthalic Alkyd Resins

Favorable reports from coating manufacturers give evidence that S & W Aroplaz 1311 has proved successful as a substitute resin-plasticizer for use with urea and melamine resins in the formulation of bake-coatings. Introduced not quite a year ago as a replacement for scarce alkyds, this new resin has, after continued observation and testing, shown surprisingly high outdoor durability.

Because urea and melamine resins lack sufficient flexibility and adhesion, they are rarely used alone in baking finishes. Alkyd resins have usually been added to secure these qualities. However, the supply of phthalic anhydride, from which alkyd resins are made, is so scarce that only the very highest military end-use requirements can be met. Moreover, very few resins, other than alkyds having a phthalic content, are compatible with urea and melamine. Those that are compatible usually do not furnish the desired flexibility and adhesion.

High Compatibility

Although free from any phthalic content, S & W Aroplaz 1311 is highly compatible with both urea and melamine resins and, at the same time, imparts required flexibility without inducing excessive softness or lack of resistance. It also works well with nitrocellulose and is being used as a resin-plasticizer in lacquer. With practically all raw materials in scarcity and under some kind of government allocation and control, end-uses still control the availability of S & W Aroplaz 1311, but these are of a far less critical nature than those for phthalic alkyd type resins.

Specifications

Solution	59-61% Solids (in High Solvency Naphtha)
Viscosity (G-H)	S-V
Acid Value of Plastic	25-30
Color (G. H. 1933)	8-10
Wt./gal. at 25°C.	8.2 lbs.

Diversification Keynotes Dodge & Olcott Merger

U.S.I. Management Sees Acquisition of Famous Essential-Oil House Adding Tremendous New Scope to Its Services

In acquiring the assets and business of Dodge & Olcott Company, one of the country's largest essential oil houses, U.S.I. has extended its activities into another important branch of the chemical industry. Dodge & Olcott manufacturers, imports, and distributes a line of products numbering well in the hundreds. The line includes important new insecticide concentrates, as well as a full range of essential oils, perfume bases, flavor bases, etc.

"D & O" Organization Unchanged

No changes are contemplated in personnel or organizational set-up of Dodge and Olcott. It will continue to operate as a separate company under its present management, which is headed by Francis T. Dodge, President and Charles A. Myers, Valentine H. Fischer, and Charles O. Homan, Vice Presidents.

Insecticide Market Looms Large

"D & O" has played a key role in the development of the much-heralded aerosol "bomb", used so successfully by our Armed Forces to rid tents, buildings and airplanes of mosquitoes and other insects. It was this company which first developed a pyrethrum of sufficient purity to be non-irritating and

(*Continued on next page*)

Photo Courtesy of Westinghouse

The aerosol "bomb" in action. One six inch dispenser contains enough insecticide to end insect life in 150,000 cubic feet of space. The pure pyrethrum extract developed by "D & O" contributed much to the success of these bombs.

Limited Quantities of Indalone Available

As this issue of U.S.I. Chemical News goes to press, limited quantities of Indalone, the insect-repellent which has been used in such large quantities and with such success by the armed forces, are available for civilian end uses.

Prepares Pectic Compounds of Greater Gelling Power

According to claims made in a recently granted patent, pectinic acid of superior viscosity, and therefore superior gelling power, can be obtained in far shorter time and under excellent control, by using enzyme pectase. Following adjustment of the methoxy content of apple pommace extract to the desired percent, the extract was adjusted to pH 6.5, tomato juice serum added, and as acidity developed, the pH was maintained at approximately 6.5 with sodium hydroxide. After addition of the proper amount of sodium hydroxide, pH was dropped to 4.0 by the addition of hydrochloric acid. The mixture was then heated, cooled, and the pectic acid precipitated out with either acetone or ethanol.

Gelling powers of pectic compounds in general depend to a great extent on molecular weight, or degree of aggregation, of the compound. Conventional methods for removal of methoxy groups from pectin largely destroy this aggregation and hence yield products of low gelling power.

New Cellulose Acetate Process Promises Improved Plastics

A New Jersey inventor appears to have found a practical way to take much greater advantage of the high oxidation and moisture resistance of cellulose triacetate than has ever been done in the past. His unique use of low temperatures to make acetates of high acetyl content soluble in acetone, ethyl acetate and other conventional acetate solvents should facilitate the manufacture of a whole range of products with improved chemical, physical and electrical characteristics.

Cellulose triacetate has long been known to have important advantages over the partially acetylated cellulose commonly used in commercial practice. It is more stable to light, oxidation and hydrolysis. It has excellent electrical insulation which is less affected by high humidity. The trouble has always been that it could not be dissolved in ordinary solvents, except chlorinated hydrocarbons whose toxicity and corrosiveness made them impractical. Also, the high melting point of the triacetate, and its lower solubility in plasticizers, required the use of a solvent that could readily be removed.

The new process, on which a patent has just been granted, is founded on the discovery that when the triacetate is maintained in contact with a solvent like acetone at a low temperature (from −10 to −75 C) for a sufficient period, a swelling action occurs. As the swollen gel is warmed to room temperature, it becomes fluid and forms a workable solution.

ADVERTISEMENT—*This entire page is a paid advertisement.*

July ★ **U.S.I. CHEMICAL NEWS** ★ 1945

Dodge & Olcott Merger

(Continued from preceding page)

to function properly in the "bomb". It was "D & O" who first put this extract into large-scale production, thus expediting the whole aerosol program.

This and other "D & O" developments will dovetail profitably with the intensified activities of U.S.I. in the insecticide and insectifuge fields. Indalone, the U.S.I. insect repellent which is now rendering yeoman service in the Pacific, is expected to find rapidly increasing use in peacetime consumer products. Further U.S.I. developments in the insecticide field will channel through "D & O" and contribute to their service in the industry.

Historic Company

Founded in 1798 by Robert Bach, Dodge & Olcott Company is one of the three oldest companies in the United States. It is also one of the most interesting, for its business is truly "global" in scope. Madagascar, Java, China, Egypt are but a few of the far-flung areas of the world from which its imports come. It imports or processes products — ranging all the way from ambergris to wormwood oil — which are obtained from thirty or more different countries. In finished form, these products are sold in an equal number of foreign markets.

Old in years, Dodge & Olcott is young in its approach to modern problems. Perhaps the best example of this is the company's ingenuity in providing practical substitutes for certain imported materials that have been cut off by the war. Mr. Dodge, who is directly related to the original founder of the company, typifies the progressive spirit that pervades the entire organization. It is such progressiveness that has kept "D & O" one of the most respected names in the chemical industry — a name that stands for integrity and high technical proficiency in an extremely complex business.

This new fiber drum, now used by U.S.I. for shipping some of its resin products, has an easy-to-use lever-ring closure which facilitates opening and re-closing.

Tabletting Process Makes Use of Ethanol

The stability of gelatin solutions containing ethyl alcohol increases with the acidity, reaching a maximum at pH 2.5, according to a recently translated German paper. Solutions of gelatin in alcohol, used in making phenacetin and lactose tablets, exhibited binding capacities equal to common gelatins but with a prolonged dissolving time. Decided advantages were found in tabletting ascorbic acid, citric acid, ephedrine-hydrochloride, basic aluminum acetate and iron lactate and tartrate. Alcoholic gelatin was also recommended for the manufacture of absorbing sugar tablets, but for mixtures of sucrose with cocoa, the aqueous solution is preferred.

Gel-Resistant Zeins Yielded by New Process

Present-day methods of extracting zein from corn gluten give a product which, unless specially treated, has a strong tendency to thicken or gel in storage. The reason, according to the inventors of a new process, is that the 80 per cent alcohol solution used extracts undesirable floc-forming proteins along with the zein. Removal of these proteins, as well as unwanted coloring matter and oil, has been both difficult and costly.

The new process is claimed to markedly reduce the extraction of these impurities by the use of a 40 to 65 per cent solution of ethanol and water.

Another feature of the new process is the treatment of the recovered zein to increase its solubility in various solvents with which it is ultimately to be used. This is accomplished by oxidizing the zein in the extract with an agent such as chlorine.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A new wetting agent, said to leave no surface film or streaks and to require no polishing, is offered for use on glass, porcelain or metal. The penetrating effectiveness of this new detergent is attributed to its action in lowering the surface tension of matter adhering to the surface. **(No. 953)**

USI

To improve adhesion of gummed paper products such as tape, labels and postage stamps, a new additive for the moistening water is offered. It is claimed to produce stronger, more uniform seals, to eliminate curling and to speed the output of sealing machines. **(No. 954)**

USI

A resin adhesive is announced as the first commercial development solely from furane derivatives. The new adhesive is claimed to bond at room temperature, to require no contact pressure and to be completely resistant to water, alcohol and gasoline. **(No. 955)**

USI

Longer-lived pickling baths are promised by the manufacturer of a new acid inhibitor, designed to protect the base metal and confine the action of the acid principally to scale and oxides. **(No. 956)**

USI

Termite control, lasting five years, is promised by a manufacturer who says government reports show his product to be highly effective in the termite control field. **(No. 957)**

USI

A new emulsifying agent, described as being non-toxic and edible, is suggested as a replacement for diglycol laurate in the preparation of pharmaceuticals, cosmetics, foodstuffs, and as a shortening base. **(No. 958)**

USI

Fire-extinguishing foam, made from soy beans, is described as being capable of smothering the toughest petroleum and chemical fires. Five gallons of the product are said to produce 900 gallons of smothering foam in a few seconds. **(No. 959)**

USI

Flame-resistant plastics, of cellulose acetate, are announced with the statement that they are heat-and-humidity resistant, tough, colorable and may be molded by the injection process. **(No. 960)**

USI

A fire-retardant coating, bone-white but tintable, for use on wood and other combustible materials, is claimed to offer exceptional coverage. One gallon is said to cover 185 sq. ft. with two coats. **(No. 961)**

USI

Faster varnish production is promised by the processor of a new linseed oil which is claimed to polymerize instantly, thus reducing the cooking time. **(No. 962)**

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Diethyl Oxalate
PHTHALIC ESTERS
Diamyl Phthalate
Dibutyl Phthalate
Diethyl Phthalate
OTHER ESTERS
*Diatol
Diethyl Carbonate
Ethyl Chloroformate
Ethyl Formate

INTERMEDIATES
Acetoacetanilide
Acetoacet-ortho-anisidide
Acetoacet-ortho-chloranilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloranilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate
ETHERS
Ethyl Ether
Ethyl Ether Absolute—A.C.S.
FEED CONCENTRATES
*Curbay B-G
*Curbay Special Liquid
*Vacatone 40

ACETONE
Chemically Pure
RESINS
S&W Ester Gums—all types
S&W Congo Gums—raw, fused & esterified
S&W *Aroplaz—alkyds and allied materials
S&W *Arofene—pure phenolics
S&W *Arochem—modified types
S&W Natural Resins—all standard grades
OTHER PRODUCTS
Collodions
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Nitrocellulose Solutions
Ethylene
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Urethan

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Polak's Frutal Works Foreign Installations Undamaged

Polak's Frutal Works, Inc., Long Island City, N. Y., has received news that the head office and plant in Amersfoort, Holland, is intact and that the equipment is undamaged.

The plant located in Perivale, near London, England, also remained undamaged, as well as the office and warehouse in Asnieres, near Paris, France.

Sidney Picker, Head of Natalie Louise, Inc., Now a Grandfather

Sidney Picker, president of Natalie Louise, Inc., and head of National Merchandisers, New York, N. Y., is now a grandfather. A granddaughter was born in Amery, Wis., to Dr. and Mrs. N. J. Gluckman, May 19. Mrs. Gluckman is the daughter of Mr. and Mrs. Picker. Coincident with this honor Mr. Picker was recently appointed chairman of the membership committee of the Toilet Goods Assn. He is also well known in the trade for the courses of merchandising drugs and cosmetics which he and Dr. Louis Bader conducted at New York University last year. The courses incidentally will be repeated this year, the first semester starting late in September.

Fritzsche Brothers Elects Two New Executives

At a special meeting of Fritzsche Brothers, Inc., New York, N. Y., held at the company's offices on June 12, the Board of Directors chose two of its younger executives for election to higher rank. Gus Wohlfort, credit manager, was oppointed to the newly created office of comptroller, while Daniel A. Neary was elevated to the position of assistant secretary, a post formerly held by the company's vice-president-secretary, John H. Montgomery, which has remained unfilled since the latter's present incumbency. In announcing the new appointments, President F. H. Leonhardt expressed satisfaction and high praise for the character and ability of both men.

Gus Wohlfort

Daniel A. Neary

Mr. Wohlfort joined the ranks of Fritzsche Brothers, Inc., twenty years ago and is well known in credit circles of the essential oil and allied industries. Mr. Neary came with the firm in 1933. Assuming varied and increasing duties, he gained a broad perspective and understanding of departmental functions and relationships that should serve him well.

ADACIOM Has "Ladies' Night"

Associated Drug & Chemical Industries of Missouri, Inc., arranged a special evening meeting in honor of wives, sweethearts and friends, on June 13, at St. Louis, Mo.

Dinner was followed by dancing. The guest speaker was Dr. John C. Krantz, Jr., who talked on "Science in a World at War."

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A. L. van Ameringen Flies to Europe to Get First Hand Information

Alonzo L. van Ameringen of van Ameringen-Haebler, Inc., New York, N. Y., flew to Ireland from La Guardia airport, New York, July 6, for the purpose of studying conditions abroad and obtaining first hand information on affairs in the trade in England and France. From Ireland he went to London and from there to Paris and his plans include a visit to Grasse. While abroad he will also renew contacts with agents and old associates of the company. He expects to return to the United States before August 1.

Cosmetic Credit Men Enjoy Annual Outing at Plandome, N. Y.

Laying aside the cares of business, members of the Drug, Cosmetic and Chemical Credit Men's Assn. gathered at the Plandome Country Club and at Great Neck, N. Y., for their annual Summer Party on the afternoon and evening of June 22.

The festivities opened with luncheon at the Plandome Country Club after which golf, bridge and other amusements were enjoyed for the balance of the afternoon. At 5 p. m. a cocktail party was held after which the dinner was held. E. P. Utter, chairman, welcomed the members and guests.

Following the dinner the party adjourned to the home of Nat Otte, the popular secretary, where an informal good time was enjoyed by all until a late hour.

Monthly meetings of the association are suspended during July and August but will be resumed in September.

When one is caught between two ex-chairmen particularly if one is Louis Candee and the other is Charles Robinson, the one in the middle who happens to be Charles Darr is likely to do a lot of listening.

The informal quartette of Ray Holladay, A. E. Weyand, Charles Darr and Mrs. E. P. Utter thrilled an appreciative audience with their singing of popular songs more or less in harmony.

It's melody — or something else — when Gus Wohlfort, E. P. Utter, and Joseph C. Lynch sing together

The talk about more ration points bores Fred Sturm but Mrs. Sturm listens attentively

"Of all the things you wear your expression is the most important" says Nat Otte who proves it

Ellis Barkerding, pianist par excellence, plays while Miss Ada Patrone, Miss Carolyn Riley and E. Kavanagh sing lullabies

This group of merrymakers includes Edward Maloney, Miss May Masterson, Mr. and Mrs. E. Foster and Paul Schoupp

Ed Foster, ex-professional baseball player tells Mrs. Foster why the Dodgers lost

Warren H. Hawkins, Miss Corinne Balliet and Mrs. Ray Holladay at the bar where an agreeable type of justice was dispensed

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Raw Materials
Essential Oils
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● Uniformity of Beehive Brand Beeswax will keep your product always up to the high standard you set for it. The quality and uniformity never change. It is free from adulterants and imperfections of any kind. And back of every tablet of Beehive Brand Beeswax stands the reputation of the manufacturer.

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SPERMACETI CERESINE RED OIL YELLOW BEESWAX
COMPOSITION WAXES STEARIC ACID HYDISTEAR

Name "Dynamite" Cleared

The controversy between the Tayton Co., Chicago, Ill., and Revlon Products Corp., New York, N. Y., concerning the use of the names "Dynamite," "Sheer Dynamite" and "Pink Dynamite" for cosmetic products has been amicably settled, and the litigation has been permanently discontinued. Revlon Products will continue to use the names "Dynamite" and "Sheer Dynamite."

Synfleur Scientific Laboratories Opens New York City Laboratory

To add to the completeness of its service to its customers in the metropolitan territory, Synfleur Scientific Laboratories, Inc., Monticello, N. Y., has opened an experimental laboratory at its New York City branch, 509 Madison Ave. The manager of the metropolitan New York area is Ernest Remley.

Albert Verley Wins Advertising Award

In a competition including 626 advertisers in 321 lines of business, advertising by Albert Verley & Co., Chicago, Ill., received the premier award for art, illustration and photography in the annual creative competition of the National Advertising Agency Network. The judges were men prominent in the graphic arts. The campaign was prepared by Hoffman & York.

Colgate-Palmolive-Peet Proposes Stock Offer

Colgate-Palmolive-Peet Co., Jersey City, N. J., has filed with the Security and Exchange Commission a statement on a proposed offering of stock. The offering is on 125,000 shares of $3.50 preferred stock.

John C. Gambles Predicts Cosmetics Boom Abroad

John C. Gambles, chairman of J. C. Gambles & Co., Ltd., and chairman of the English branch of Northam Warren Corp., Stamford, Conn., recently arrived in this country by plane to discuss various manufacturing and selling programs.

Gambles, who recently surveyed conditions in France and the Continent generally, predicted a boom in the European Toilet Goods Industry which may remain in effect three years before it is anywhere near the saturation point, "once shortages of labor, transportation and ingredients have been overcome." A principal difficulty, he said, is the lack of essential oils, and many of the larger houses would rather keep off the market until they can obtain proper ingredients.

Northam Warren welcoming John Gambles

POST-WAR

Leading cosmetic houses whom it is our privilege to serve look forward to increased sales after the war. To them post-war is merely a postscript . . . knowing that our exacting standards of quality carry on under all circumstances.

Making reputations today which will be greater tomorrow is part and parcel of our laboratory service.

Why not a line on your letterhead for completely eloquent samples?

KELTON

Cosmetic Company

230 West 17th Street
New York 11, N. Y.

819 Santee Street
Los Angeles 14, Calif.

Lipstick • *Eyeshadow* • *Rouge* • *Mascara* • *Powder*

Karl Voss Corporation
HOBOKEN NEW JERSEY

PERFUMERS

BASIC MATERIALS

Burlow Bush

BASIC

PERFUME

SPECIALTIES

BUSH AROMATICS
INCORPORATED
136 LIBERTY STREET
NEW YORK CITY
Cable address: ARROBUSH
Telephone: WOrth 2-6557

Evans Chemetics Reduces Thioglycollate Prices.

Evans Chemetics, Inc., New York, N. Y., announces that commercial shipments of distilled thioglycollic acid in concentrations of 90-95 per cent, as well as ammonium thioglycollate in the same concentrations are now being produced in its Waterloo plant.

Due to increased demands for these and other mercaptans, it has been possible to reduce prices to the point where many new uses for these compounds are anticipated.

"Products of Tomorrow Exposition" Planned

America's first annual "Products of Tomorrow Exposition" is being planned for an opening in Chicago on January 18, 1946, subject to military exigencies. The Chicago Coliseum, the North Hall Exhibition Bldg., the Armory and the Administration Bldg., are all part of the group to be used.

Exhibitors will have few restrictions on the design of their displays. They will be encouraged to go the limit in originality and effectiveness.

The Exposition will comprise two main divisions, consumer and industrial products, with the addition of others as the demand requires.

The Exposition will be an annual event to provide a springboard for the introduction of new products. On a permanent basis it will make it possible for many new industries to "design for obsolescence" as the automobile industry has done.

Traffic flow and crowd engineers estimate that 35,000 people per day can be handled with facilities available. The Exposition will be kept open as long as the weekly attendance warrants. Floor space is now being booked by exhibitors.

Partnership Changes in Creative Printmakers Group

Creative Printmakers Group announces that Bernard Schardt, plant manager, and Harry Knight, sales manager, have been admitted to partnership in the firm.

Constantine Velonis, formerly a partner, no longer has any connection with Creative Printmakers Group.

No change has been made in the structure of the organization. However, plant facilities have been considerably increased with the addition of 17,000 sq.ft., in a modern manufacturing location at 200 Varick St., New York, N. Y.

Chicago Drug & Chemical Assn. Golf Program

The golf committee of the Chicago Drug & Chemical Assn. has announced three tournaments for the 1945 season.

The first was held on June 26 and 27. The two to follow are scheduled for July 20, at Sunset Ridge, and August 7, at Midlothian. Bruce Puffer is chairman of the committee.

Tall Oil Inventores Limited

War Food Order No. 136 regulates the distribution of tall oil, giving essential users preferential treatment.

Users are limited to a 30 days' supply or 1000 pounds, whichever is greater, in the East; and a 45 days' supply or 1000 pounds, whichever is greater, in the West.

SAME OBJECTIVE

...different results

Grinding methods of years gone by, especially the one used by cave men, were crude. But, they served the purpose at that time.

Today, grinding done by Whittaker, has become an exact science. It is more than merely pulverizing cosmetic ingredients to a specified micron size. As an instance, it involves a comprehensive study of the crystalline structure of various grades of the same mineral. This results in a better understanding of the characteristic properties and how they will be affected by grinding.

As a benefit of this research at Whittaker, you get the proper grade of cosmetic ingredients, ground to the proper maximum micron size, which will aid in bettering the over-all quality of your cosmetics.

Albatex • Stearates • Purified Cosmetic Titanium • Colloidal Kaolin
Magnesium Carbonate • Precipitated Chalk • Colors • Talc

® 7683

EST. WHITTAKER 1890

Sales Representatives
CHICAGO — Harry Holland & Sons
NEW ORLEANS — Edward W. Ortenbach
PHILADELPHIA — Peltz & Company
TORONTO & MONTREAL — Richardson Agencies, Ltd.
CLEVELAND — Palmer Supplies Co., formerly Palmer Schuster Co.

Whittaker, Clark & Daniels, INC.
260 West B'way, New York 13, N. Y. • Plant: South Kearney, New Jersey

NEW!
UNIQUE!
DISTINCTIVE!

SALES-STIMULATING!

We are happy to announce to the trade that we are prepared to distribute these two newly created, unusual, highly attractive Glass Stoppered Bottles, as shown here, *in one-half ounce and one ounce sizes!* For full particulars, prices, etc., WRITE US AT ONCE!

OTHER ITEMS WE CAN SUPPLY:

Plastic & Metal Closures for the Cosmetic Trade in a Variety of Designs and Colors

Bottles and Jars in Opal and Flint

Specializing in Enameling Closures Your Color!

Samples on Request!

RICHFORD CORPORATION

221 FOURTH AVE. • NEW YORK 3, N. Y.

P. E. Roehrich, President

Phones: AL4-9656 *AL4-4958*

FROM *Tombarel Frères*

GRASSE, FRANCE

Soon—we hope—we will again be in position to offer the excellent products of this century-old leader in perfume specialties — including their famous

Absolute Supreme
Flower Essences
Surfine Essential Oils
Resinoid .....

and others which have won world-wide favor with perfume producers

Tombarel **PRODUCTS CORPORATION**

L. J. ZOLLINGER, *President*

12 EAST 22nd STREET · NEW YORK 10

***In Chicago:* A. C. DRURY & CO., INC.**

219 EAST NO. WATER STREET

Explosion Wrecks Perfume Plant

Alcohol which was being poured into a tank was ignited by a motor spark in the plant of Champrel Cosmetics, Inc., New York, N. Y.

The fire set off six explosions which injured four persons, blew out the windows of the factory and damaged the rear and roof of the building.

Glycerin Inventories Restricted

Glycerin users, under new restrictions, War Food Order No. 134, may not carry inventories representing more than a 30 days supply. Where inventories are not above 2/3 of such a supply deliveries may be accepted up to a "maximum unit." Certificates in the following form must be furnished:

"The undersigned hereby certifies to the War Food Administration and to (name and address of supplier) that he is familiar with the terms of War Food Order No. 134, that this certificate is furnished in order to enable the undersigned to acquire .... pounds of glycerin, to be delivered on or about ...., and that the receipt by him of such glycerin will not increase his inventory beyond the amount permitted under War Food Order No. 134.

.....Purchaser

.....Authorized Official

Date....."

Cosmetics Division Tops 7th War Loan Quota

As of June 22 the Cosmetics and Perfume division of the New York County War Finance Committee had achieved 104 per cent of its Seventh War Loan quota of $7,000,000. Norman Dahl is chairman.

Sterling Capital Structure Change Approved

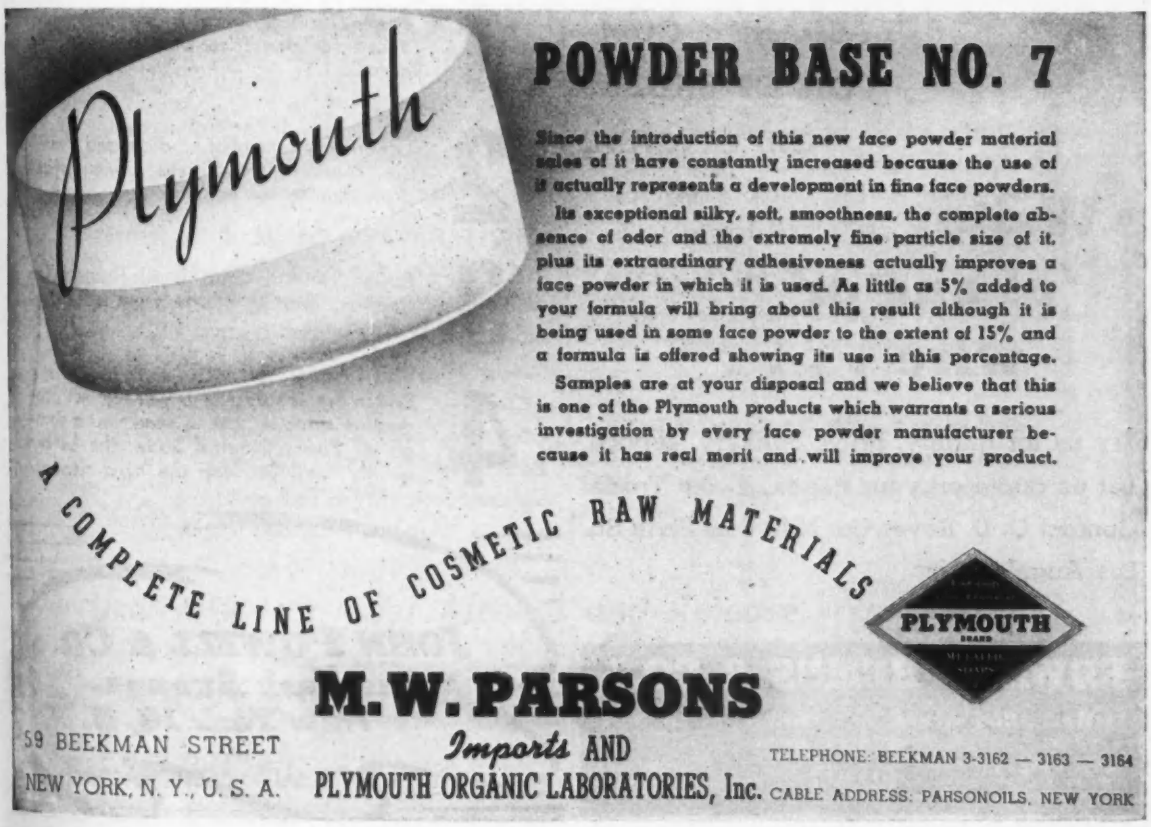
Authorization was given at the annual meeting of the stockholders of Sterling Drug, Inc., New York, N. Y., to change the company's capital structure through the issuance of 125,000 shares of preferred stock, and a two for one split-up of the common stock.

At the time James Hill, Jr., disclosed a sharp increase in sales during the first four months of 1945, and predicted that, "barring unforseen developments, sales of Sterling Drug, Inc., during the current year should reach $100,000,000." Sales in 1944 were $68,350,258.

Foragers Nearing Half-Century Mark Have Gala Summer Outing

Good fellowship which is never rationed among the Foragers was very much in evidence when 65 members journeyed to Timber Point, N. Y., by train and by automobile June 30 to enjoy another of the association's famous Summer outings. As in the past, the skies were sunny, the climate was bracing and various sports such as base ball, golf and swimming were enjoyed. Following this a bountiful dinner was served. The complete success of the affair was due to the efforts of the committee in charge of arrangements consisting of Edward Russell, chairman; Stanley Park, Robert MacGilvoray and John Fenlon.

The organization is the oldest association in the toilet goods industry. Back in January, 1896, a dinner was given to Gen. Nicholas O. Day by a


Plymouth
POWDER BASE NO. 7
Since the introduction of this new face powder material sales of it have constantly increased because the use of it actually represents a development in fine face powders.
Its exceptional silky, soft, smoothness, the complete absence of odor and the extremely fine particle size of it, plus its extraordinary adhesiveness actually improves a face powder in which it is used. As little as 5% added to your formula will bring about this result although it is being used in some face powder to the extent of 15% and a formula is offered showing its use in this percentage.
Samples are at your disposal and we believe that this is one of the Plymouth products which warrants a serious investigation by every face powder manufacturer because it has real merit and will improve your product.
A COMPLETE LINE OF COSMETIC RAW MATERIALS
PLYMOUTH
M.W. PARSONS
59 BEEKMAN STREET
NEW YORK, N. Y., U. S. A.
Imports AND
PLYMOUTH ORGANIC LABORATORIES, Inc.
TELEPHONE: BEEKMAN 3-3162 — 3163 — 3164
CABLE ADDRESS: PARSONOILS, NEW YORK

Essential Oils and Aromatic Products

IMMEDIATE DELIVERY

• Large stocks are now carried by us in our factory and warehouse, for your immediate needs . . .

OAKMOSS SOLUBLE RESIN
OIL OF SPIKE LAVENDER
BALSAM OF COPAIBA
CREAM OF TARTAR
OIL OF CEDARWOOD
OIL OF ROSEMARY
LABDANUM GUM
OIL OF SAGE
OIL OF CADE

• Write, 'phone or wire . . . .

Try us for quality, price, delivery, service. Let us quote on your needs. Coast Trade: Contact O. D. Royer Co. 1340 East Sixth St., Los Angeles.

EDWARD REMUS & CO. Inc.
11 West 42nd Street • New York 18, N. Y.
CABLE ADDRESS: EDSUMER, NEW YORK
TELEPHONE: CHickering 4-4382
FACTORY & WAREHOUSE
607 West 43rd Street
NEW YORK, N. Y.
WESTERN OFFICE
806 Delaware Street
KANSAS CITY, MO.

Here are 4 reasons why you should investigate

POWCO BRAND
REG. U.S. PAT. OFF.

neutral soap

1 Powco Neutral Soap is especially produced for dentifrice and cosmetic formulas.

2 Laboratory control of physical and chemical characteristics gives all-important protection to the purchaser.

3 Powco Neutral Soap is air-floated for fineness, and it's made from specially-refined oils.

4 Powco Brand safeguards you against production troubles. Let us send you a sample of Powco Neutral Soap, the better quality soap you can use at a savings.

JOHN POWELL & CO.
One Park Avenue
New York 16, N. Y.

Officers and Board of Governors of the Foragers—Oldest Association in the Trade

group of men in the trade on the occasion of his leaving F. R. Arnold & Co. The dinner was held at Munchenheim Gardens, and was attended by 13 men. The affair was so enjoyable that in January, 1897, it was decided to organize an association which has been functioning ever since. When the time came to select a name Gen. Day, who had since joined the organization of Schieffelin & Co., related how during the Civil War it was the custom of the army to send out its best men to forage for food. This struck a responsive chord and the name "Foragers" was adopted. For 48 years since then it has been meeting regularly. Meetings were held at Bunn Brothers cafeteria for a while, then at Keene's Chop House and later at the Herald Square Hotel. About ten years ago headquarters were selected at the Midston House where the association has permanent club rooms.

Four of the original charter members are still on the rolls of the association: A. G. Neidermeyer, O. C. Neidenstein, William C. Randall and Robert A. White. The membership is limited to 150 and there is always a waiting list. There are 8 members in the service and there are 7 life members.

With the conclusion of the administration of the present president, Walter A. Conklin, who is serving his second term, the association will be half a century old. The accompanying photograph shows the officers and board of governors. The officers are Walter A. Conklin, president; Richard R. Powell, vice president; Arthur J. Connolly, secretary-treasurer; Oscar H. Betz, Louis S. Huntington, John H. Curry, C. R. Keeley, Victor H. Fredholm, Edward Russell, Walter C. Rochelle, Charles M. Macauley, Stanley Park, J. J. Fenlon, and Robert MacGilvoray. W. W. Neilson, a member of the board, was absent when the photograph was taken.

ISOPROPYL ALCOHOL

available for

SHAMPOOS: Isopropyl Alcohol aids in cleaning hair and scalp thoroughly and in leaving hair soft and lustrous.

HAIR AND SCALP PREPARATIONS: Isopropyl Alcohol as a vehicle for hair and scalp preparations aids the cleansing and antiseptic value of the tonics.

STERILIZING SOLUTIONS: 40% Isopropyl Alcohol will kill dried Bacillus Coli in ¼ minute. 50% Isopropyl Alcohol is equivalent to 70% ethyl alcohol for killing Bacillus streptococcus and staphylococcus.

BODY RUBS: Isopropyl Alcohol evaporates slowly, thereby prolonging the cooling effect when used in body rubs. Isopropyl Alcohol has no denaturants.

FACE AND HAND LOTIONS: Isopropyl Alcohol evaporates slowly; has little tendency to dry the skin, and aids in keeping the skin soft.

AFTER SHAVE LOTION: Isopropyl Alcohol is excellent for this product because it aids the after-cooling and skin-freshening qualities of the lotion.

Use 91% Isopropyl Alcohol and Release War Materials

STANDARD ALCOHOL COMPANY

26 BROADWAY NEW YORK 4, N. Y.

Use

NORTHWESTERN ETHYL BUTYRATE

when this ester is called for in your formulae.

For many years more than half of Ethyl Butyrate sold in this country has been manufactured by us — proof of the fine quality of our product.

The NORTHWESTERN CHEMICAL CO.

INCORPORATED 1882 WAUWATOSA, WISCONSIN

BENJ. FRENCH, INC.

ESSENTIAL OILS AROMATIC CHEMICALS

ORIGINAL PERFUME BASES

FLORANTHUS

Novelty base giving a sweet, flowery lift to compositions, at the same time is very lasting. Excellent base for modern odors; does not discolor.

Price: $16.00 per pound

Since 1914—Agents for

Descollonges Freres, Lyons, France

160 FIFTH AVENUE NEW YORK 10, NEW YORK

MARKET REPORT

Citrus Oils Remain Scarce and Active

While only token quantities of French oils have arrived in this market, nevertheless local developments have become more interesting with an increasing flow of certain articles being noted into this country from various other parts of the world.

Approximately one hundred and twenty-five tons of vanilla beans with a value of over two million dollars came into this port over the past month from Madagascar, and another vessel with two hundred and fifty-nine cases of beans arrived from Fort de France, Martinique. Other arrivals noted over the past month included two cargoes of menthol from Brazil with a total of about thirty tons and the receipt of 110,000 pounds of bergamot oil from Italy. In addition, a fairly substantial amount of gum karaya was received from India, the quantity amounting to 3415 bags.

While a good part of the vanilla bean cargo from Madagascar had been sold before reaching this port, it is understood additional quantities were afloat. The late arrival of one hundred and twenty-five tons from Madagascar was somewhat smaller than anticipated, but another steamer afloat is believed to have at least seventy-five tons aboard which will bring the total to the two hundred tons which had originally been expected.

MENTHOL SHIPMENTS ARRIVE

The shipment of thirty tons of menthol on the first steamer arriving here last month was, according to reports, one of the largest single shipments ever to reach this port even prior to the outbreak of the war when the Far East was the major source of our supply. Annual consumption of menthol in the United States is between two hundred and two hundred and fifty tons so that the receipt of such a large quantity is likely to satisfy the requirements of the consuming trade for some time. Toward the close of last month, a second lot amounting to four tons arrived. The spot position of the market appeared somewhat mixed.

Quotations on chemically pure and dynamite glycerin registered advances of two to three cents per pound. The increase in prices was the first change to take place in the market since September 1, 1944, at which time quotations were reduced. The first advance amounting to two cents was made on June 4, and about a week later a single producer advanced quotations another cent to the ceiling. Other producers failed to follow the last advance of a cent a pound but the overall picture was reported as decidedly firm.

GLYCERINE RESTRICTIONS

Another interesting development in glycerin was the announcement of War Food Order-134 by the War Food Administration, restricting inventories of glycerin users to a thirty-day supply and of glycerin distributors to a twenty-day supply, effective June 21. Since military demands are supplied by refiners, the WFA action was taken to assure adequate producers and refiners stocks. The demand for glycerin for military explosives for the accelerated offensive warfare against Japan has increased substantially since V-E day. Military requirements are expected to remain high throughout the war with Japan.

BERGAMOT PRICES FALL

The arrival of the second lot of bergamot oil from Italy since the beginning of the war brought about a downward readjustment in spot prices. Toward the close of last month the local market again turned firmer as major suppliers found there was a rather brisk and urgent demand for the new lots. Some dealers indicated that their quota had already been sold for immediate consumption.

PEPPERMINT PRICE DECLINES

Peppermint oil prices declined rather sharply. It was the first time the market fell below maximum OPA levels, and with new crop influences at work, it is quite possible quotations will continue to decline. The sugar shortage is likely to be reflected in a reduced demand for this oil and there have been rumors about the trade that as soon as a Government survey of the coming mint crop is completed, use restrictions are likely to be lifted.

Arrival of a sizable quantity of the spice failed to have any influence on clove oil. Major distillers explain that they have a sizable backlog of orders on hand and that the demand for oil is running well beyond present facilities to distill the oil especially in view of the labor problem. Quotations on oil ginger have held steady at both ends of the wide range reflecting the high costs of African root for distillation purposes.

So far as is known the ship that brought bergamot oil from Italy did not have any juniper berry oil aboard, and contrary to reports which were received earlier, there was no lemon oil aboard.

Virtually all citrus oils remain scarce and active. For a time there were reports in the trade to the effect that the California Fruit Exchange had advanced its price on cold pressed orange oil. While no such change took place, nevertheless, the exceedingly firm position of the market led some trade factors to believe that an adjustment in selling schedules will eventually be made.

CODAN
Registered trade mark

IMPORTERS

From FRANCE — FLORAL OILS
FINE *ESSENTIAL* OILS

From ORIGIN — MUSK
CIVET
AMBERGRIS

GERARD J. DANCO, Inc.

3 EAST 44TH STREET, NEW YORK 17, N. Y. PHONE: VA. 6-0981

Over
⅓
Century
of
Dependability

- BOTTLES
- JARS
- CLOSURES

...and remember, Ceramic coloring and lettering at our GLASSCRAFTERS Division

W. BRAUN CO.

300 N. CANAL ST. . . . CHICAGO 6, ILL.

QUALITY FIRST!

PRIVATE LABEL COSMETICS

PRODUCTS THAT MERIT SUCCESS!

LABEL DESIGN
FORMULA SERVICE
SCIENTIFIC CONTROL
SAMPLES ON REQUEST

The foundation stone of any private label brand is quality. Ann J. MacHale, Inc., has been specializing in quality cosmetic supplies to the trade for three decades. Its products are represented by a host of private brands in every field of cosmetic merchandising. Same careful control exercised over small and large orders.

Expert advice and consultation without cost or obligation.

ANN J. MacHALE, INC.

15 West 17th Street, New York 11, N. Y.

PRICES IN THE NEW YORK MARKET

(Quotations on these pages are those made by local dealers, but are subject to revision without notice)

ESSENTIAL OILS

Almond Bit, per lb.	3.50@	4.00
F. P. A.	5.00@	5.50
Sweet True	1.35@	1.60
Apricot Kernel	.50	Nom'l
Amber, rectified	2.25	Nom'l
Angelica Root	125.00@	150.00
Anise, U. S. P.	4.00	Nom'l
Imitation	1.75@	2.10
Aspic (spike) Span.	3.00@	3.75
Avocado	1.05@	1.25
Bay	1.50@	1.75
Bergamot	9.00@	10.00
Artificial	4.00@	9.25
Birch, sweet	2.75@	5.00
Birchtar, crude	2.25	Nom'l
Birchtar, rectified	4.25	Nom'l
Bois de Rose	5.75	Nom'l
Cade, U. S. P.	.90@	1.20
Cajeput	2.35@	3.00
Calamus	22.50@	35.00
Camphor "white," dom.	.35	Nom'l
Cananga, native	12.75@	13.00
Rectified	15.00@	16.25
Caraway	20.00@	22.00
Cardamon	21.00@	25.00
Cassia, rectified, U. S. P.	12.00	Nom'l
Imitation	3.75@	
Cedar leaf	1.20@	1.35
U. S. P.	2.65@	3.34
Cedar wood	1.00@	1.10
Celery	17.00@	20.00
Chamomile	150.00	Nom'l
Cinnamon bark oil	32.50@	35.00
Citronella, Ceylon	1.35@	1.45
Java	3.25	Nom'l
Cloves, Zanzibar	1.80@	1.85
Coriander	30.00@	32.00
Imitation	12.00@	14.00
Croton	3.75@	4.25
Cumin	9.00@	11.00
Dillseed	8.00	Nom'l
Erigeron	2.25@	5.00
Eucalyptus	1.12@	1.19
Fennel, Sweet	4.00	Nom'l
Geranium, Rose, Algerian	15.00	Nom'l
Bourbon	16.00@	17.50
Turkish	5.00@	5.80
Ginger	20.00@	22.00
Guaiac (Wood)	4.00@	4.80
Hemlock	2.65@	3.34
Substitute	.55@	.60
Juniper Berries	12.50@	16.00
Juniper Wood, imitation	1.00@	1.25
Laurel	5.00	Nom'l
Lavandin	8.25	Nom'l
Lavender, French	12.00	Nom'l
Lemon, Calif.	3.25	Nom'l
Lemongrass	2.35@	3.00
Limes, distilled	7.50@	8.00
Expressed	13.50@	15.00
Linaloe	4.00@	4.15
Lovage	95.00	Nom'l
Marjoram	7.25@	7.50
Neroli, Bigarde P.	300.00@	375.00
Petale, extra	265.00@	300.00
Olibanum	5.00@	5.75
Opopanax	30.00@	38.00
Orange, bitter	3.90@	3.95
Brazilian	1.50@	1.65
Calif., exp.	2.00@	
Orris Root, abs. (oz.)	135.00@	
Artificial	36.00@	40.00
Pennyroyal, Amer.	3.50@	3.80
European	4.10	Nom'l
Peppermint, natural	7.00@	7.25
Redistilled	7.50@	7.75
Petitgrain	2.25@	2.50
Pimiento	7.50@	8.00
Pinus Sylvestris	4.25@	5.00
Pumillonis	4.25@	4.75
Rose, Bulgaria (oz.)	30.00@	40.00
Synthetic, lb.	45.00@	55.00
Rosemary, Spanish	1.45@	1.60
Sage	3.00@	3.50
Sage, Clary	25.00@	30.00
Sandalwood, N. F.	7.00@	7.25
Sassafras, natural	2.00@	2.15
Artificial	.95@	1.25
Snake root	12.00	Nom'l
Spearmint	4.00	Nom'l
Thyme, red	2.75@	3.00
White	3.05@	3.80
Valarian	40.00	Nom'l
Vetivert, Java	50.00	Nom'l
Bourbon	30.00@	32.00
Wintergreen	4.85@	8.50
Wormseed	5.25	Nom'l
Ylang Ylang, Manila	38.00	Nom'l
Bourbon	13.00@	20.00

(Continued on page 93)

BRIDGEPORT...

For the past two years our facilities have been devoted almost exclusively to the production of war materials. We have been fortunate, in that we have been able to handle this work on the same equipment used for our regular peace time products, and, consequently, when material again becomes available for lipstick containers, vanity cases and other metal cosmetic items we will be prepared to start producing our regular line immediately. If you too are planning your post war program, we will be glad to assist you.

THE BRIDGEPORT METAL GOODS MFG. CO.

Established 1909

BRIDGEPORT 'PHONE BRIDGEPORT 3-3123 CONNECTICUT

VANITY CASES • ROUGE CASES • PASTE ROUGE CONTAINERS • LIPSTICK HOLDERS (ALL TYPES) • POWDER BOX COVERS • EYEBROW PENCIL HOLDERS • BOTTLE CAPS • JAR CAPS • METAL NOVELTIES TO ORDER

ESSENTIAL OILS — DREYER — AROMATIC CHEMICALS

P.R.DREYER INC.

119 WEST 19TH STREET
NEW YORK, N.Y.

IMITATION
OTTO ROSE

A duplication which accurately captures the full Rose character. Same strength as the NATURAL OTTO ROSE at one-sixteenth the price. Give it the same tests as the NATURAL OTTO ROSE and note the similarity.

SAMPLES and PRICES
ON REQUEST

FLOWER OILS • PERFUME SPECIALTIES

STANTON'S
AMMONIUM THIOGLYCOLATE

The famous cold wave base . . . stable, pure and free from injurious by-products.

We invite our customers to take advantage of the unique services of our Laboratories. We point with modest pride to a couple of our recent developments.

Can you completely remove iron if your solution turns pink? We can tell you how.

Need help with your emulsification? We can give you the know-how in producing a pure white and stable solution.

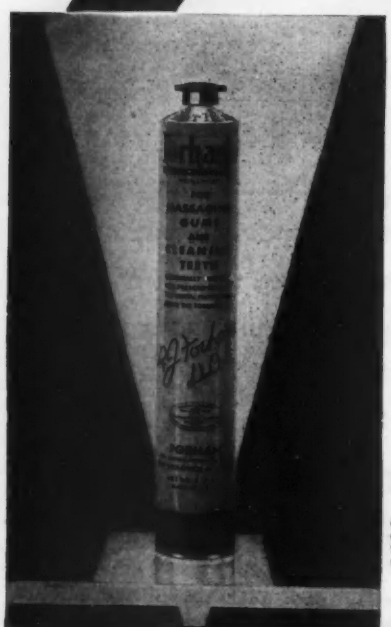
Our materials are sold exclusively to the Cosmetic and Drug Manufacturers.

All technical questions are maintained in the strictest confidence.

STANTON LABORATORIES
MANUFACTURING CHEMISTS
WYNCOTE PENNA.

EVERY CHEMICAL for
COSMETIC INDUSTRY
(EXCEPT ALCOHOL)
Export *Domestic*
R. F. REVSON CO.
144 WEST 18th ST. NEW YORK 11, N. Y.

TURNER TUBES •



SMART
MODERN
DURABLE
UNIFORM
COLORFUL

TURNER WHITE METAL CO., Inc. . . . New Brunswick, N. J.

EXCLUSIVE
PRIVATE BRAND
COSMETICS

COSMIA

COSMIA LABORATORIES
95 MADISON AVE. NEW YORK 16, N. Y.

(Continued from page 91)

TERPENELESS OILS

Bergamot	25.00	Nom'l
Grapefruit	65.00@	
Lavender	28.00	Nom'l
Lemon	45.00	Nom'l
Lime, ex.	80.00@	100.00
Distilled	60.00@	67.00
Orange sweet	65.00@	112.00
Peppermint	13.35@	14.00
Petitgrain	3.50@	3.75
Spearmint	5.00@	6.00

DERIVATIVES AND CHEMICALS

Acetaldehyde 50%	1.90@	2.75
Acetaphenone	1.70@	1.80
Alcohol C 8	7.50	Nom'l
C 9	14.00	Nom'l
C 10	7.75@	12.00
C 11	11.50	Nom'l
C 12	7.20@	8.50
Aldehyde C 8	22.50@	28.00
C 9	32.00	Nom'l
C 10	22.00@	29.00
C 11	22.00	Nom'l
C 12	25.00@	30.00
C 14 (so called)	9.25@	9.75
C 16 (so called)	7.65@	8.25
Amyl Acetate	.55@	.75
Amyl Butyrate	.90@	1.10
Amyl Cinnamate	4.50@	5.80
Amyl Cinnamate Aldehyde	2.75@	5.00
Amyl Formate	1.00@	1.50
Amyl Phenyl Acetate	3.75@	4.00
Amyl Salicylate	.80@	1.00
Amyl Valerate	2.10@	2.75
Anethol	3.50	Nom'l
Anisic Aldehyde	3.35@	4.00
Benzophenone	1.15@	1.30
Benzyl Acetate	.75	Nom'l
Benzyl Alcohol	1.85	Nom'l
Benzyl Benzoate	1.10	Nom'l
Benzyl Butyrate	2.15	Nom'l
Benzyl Cinnamate	5.15	Nom'l
Benzyl Formate	2.50@	3.75
Benzyl-Iso-eugenol	10.25	Nom'l
Benzylidenacetone	2.25@	3.40
Borneol	1.80	Nom'l
Bornyl Acetate	2.25	Nom'l
Bromstyrol	6.25@	
Butyl Acetate	.18¼@	.18½
Cinnamic Acid	3.75@	4.50
Cinnamic Alcohol	3.65@	3.85
Cinnamic Aldehyde	2.65@	3.90
Cinnamyl Acetate	10.50@	12.00
Cinnamyl Butyrate	12.00@	14.00
Cinnamyl Formate	10.00@	13.00
Citral, C. P.	5.00@	5.80
Citronellol	6.50@	7.00
Citronellyl Acetate	8.60@	9.20
Coumarin	3.00@	3.50
Cuminic Aldehyde	8.00@	11.25
Diethylphthalate	.24	Nom'l
Dimethyl Anthranilate	4.55@	5.00
Ethyl Acetate	.25@	.35
Ethyl Anthranilate	5.50@	7.00
Ethyl Benzoate	.90@	1.15
Ethyl Butyrate	.75@	.90
Ethyl Cinnamate	3.50	Nom'l
Ethyl Formate	.75@	.95
Ethyl Propionate	.80	Nom'l
Ethyl Salicylate	.90@	1.00
Ethyl Vanillin	5.25@	6.00
Eucalyptol	3.00	Nom'l
Eugenol	3.30@	3.50
Geraniol, dom.	5.75@	6.00
Geranyl Acetate	4.00	Nom'l
Geranyl Butyrate	8.50	Nom'l
Geranyl Formate	13.40	Nom'l
Heliotropin, dom.	6.50	Nom'l
Hydrotopic Aldehyde	15.00@	18.00
Hydroxycitronellal	8.50	Nom'l
Indol, C. P.	23.00@	26.50
Iso-borneol	1.10	Nom'l
Iso-butyl Acetate	1.25@	2.00
Iso-butyl Benzoate	1.50@	2.60
Iso-butyl Salicylate	2.70@	3.00
Iso-eugenol	4.00	Nom'l
Iso-safrol	3.00	Nom'l
Linalool	8.50	Nom'l
Linalyl Acetate 90%	8.75@	9.00
Linalyl Anthranilate	15.00@	
Linalyl Benzoate	10.50@	
Linalyl Formate	9.25@	12.00
Menthol, Brazilian	8.75@	10.00
Methyl Acetophenone	1.80	Nom'l
Methyl Anthranilate	2.25@	2.40
Methyl Benzoate	.60@	1.00
Methyl Cellulose, f.o.b. shipping point	.60	Nom'l
Methyl Cinnamate	3.00	Nom'l
Methyl Eugenol	3.50@	6.75
Methyl Heptenone	3.50	Nom'l
Methyl Heptine Carbonate	45.00@	60.00
Methyl Iso-eugenol	5.85@	10.00
Methyl Octine Carbonate	24.00@	30.00
Methyl Paracresol	2.50	Nom'l
Methyl Phenylacetate	3.75@	4.00
Methyl Salicylate	.37@	.38
Musk Ambrette	4.25@	4.50
Ketone	4.35@	4.80
Xylene	1.65@	2.50
Neroline (ethyl ether)	2.00@	3.15
Paracresol Acetate	2.55@	3.00
Paracresol Methyl Ether	2.60@	2.85
Paracresol Phenyl-acetate	6.50@	8.50
Phenylacetaldehyde 50%	3.00	Nom'l
100%	5.00	Nom'l
Phenylacetic Acid	3.00@	3.75
Phenylethyl Acetate	2.50	Nom'l
Phenylethyl Alcohol	2.80@	3.00

(Continued on page 95)

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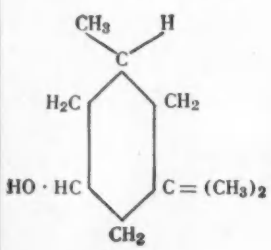

FIG. 1

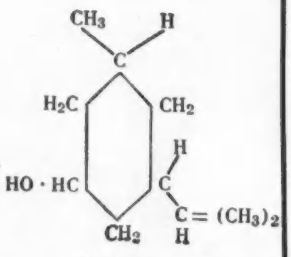

FIG. 2

Cyclonol replaces Menthol satisfactorily in shaving creams and lotions, liniments, analgesic balms, ointments and similar preparations. It has also been accepted by the U. S. Treasury Department as a Denaturant for alcohol in place of Menthol U.S.P.

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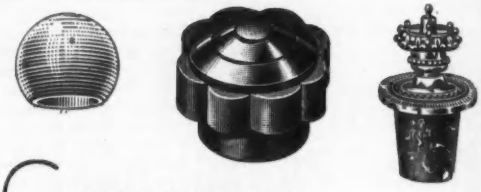

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Phenyl Valerianate	16.00@	17.50
Phenylpropyl Acetate	10.00	Nom'l
Santalyl Acetate	20.00@	22.50
Scatol C. P. (oz.)	5.35@	6.00
Styrolyl Acetate	2.50@	3.00
Vanillin (clove oil)	2.60	Nom'l
(guaiacol)	2.35	Nom'l
Lignin	2.35	Nom'l
Vetivert Acetate	25.00	Nom'l
Violet Ketone Alpha	18.00	Nom'l
Beta	15.00	Nom'l
Methyl	6.50	Nom'l
Yara Yara (methyl ester)	2.00@	3.10

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Tonka Beans Surinam	.80@	.95
Angostura	1.75@	2.00
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Almond meal	.25@	.35
Ambergris, ounce	12.00@	16.00
Balsam, Copaiba	.85@	.95
Peru	1.25@	1.35
Beeswax bleached, pure U. S. P.	.58	Nom'l
Yellow, refined	.53½	Nom'l
Bismuth, subnitrate	1.20@	1.22
Borax, crystals, carlot ton	55.50@	58.00
Boric Acid, U. S. P., cwt.	6.95@	7.55
Calamine	.18@	.20
Calcium, phosphate	.08@	.08¾
Phosphate, tri-basic	.09@	.10
Camphor, domestic	.69@	.84
Castoreum	13.00@	17.00
Cetyl Alcohol	1.75@	1.80
Chalk, precip.	.03½@	.06½
Cherry Laurel Water, jug, gal.	3.60@	4.00
Citric Acid	.21	Nom'l
Civet, ounce	18.00@	25.00
Clay, colloidal	.07@	.15
Cocoa, Butter, lump	.25½@	.27
Cyclohexanol (Hexalin)	.30@	.50
Fuller's Earth, ton	15.00@	33.00
Glycerin, C. P., drums	.17¼@	.17¾
Gum Arabic, white	.42@	.45
Amber	.12½@	.13
Powdered, U.S.P.	.18@	.21
Gum Benzoin, Siam	5.00	Nom'l
Sumatra	1.40	Nom'l
Gum Galbanum	1.80@	2.00
Gum Myrrh	.55	Nom'l
Henna, pwd.	.30@	.35
Kaolin	.05@	.07
Labdanum	3.25@	5.00
Lanolin, hydrous	.30@	.34
Anhydrous	.31@	.35
Magnesium, carbonate	.09@	.10¾
Stearate	.24@	.27
Musk, ounce	50.00	Nom'l
Olibanum, tears	.21@	.35
Siftings	.11½@	.13
Orange Flower Water, gal.	1.75@	2.25
Orris Root, African, pwd.	1.10@	1.15
Paraffin	.06@	.09
Peroxide	1.10@	1.75
Petrolatum, white	.06¼@	.08½
Quince Seed	1.65@	1.95
Rice Starch	.10	Nom'l
Rose Leaves, red	3.45@	4.00
Rose Water, gal.	6.50@	8.00
Rosin, M. per cwt.	7.15@	
Salicylic Acid	.35@	.40
Saponin	2.00@	2.50
Silicate, 40°, drums, works, 100 pounds	.80@	1.20
Soap, neutral, white	.20@	.25
Sodium Carb. 58% light, 100 pounds	1.35@	2.35
Hydroxide, 76% solid, 100 pounds	2.60@	3.75
Spermaceti	.26@	.27
Stearate Zinc	.29@	.30
Styrax	1.10@	1.20
Tartaric Acid	.64	Nom'l
Tragacanth, No. 1	3.90@	4.25
Triethanolamine	.34½	Nom'l
Violet Flowers	1.75@	2.00
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Cotton, crude, Southeast, tanks	.12¾@	
Grease, white	.08⅞@	
Lard	.15	22½@
Lard Oil, common, No. 1 bbls.	.14@	
Palm Niger, drums	.0865	
Peanut, blchd., tanks	.1501@	
Red Oil, distilled, tons	.12@	
Stearic Acid Triple Pressed	.18⅝@	.18⅞
Double Pressed	.15⅞@	.16⅞
Tallow, acidless, barrels	.14¼@	
Tallow, N. Y. C., extra	.08⅝@	
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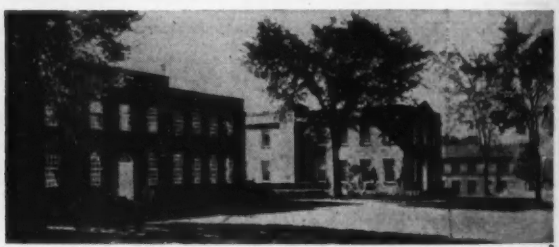

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Production Control and the Analysis of Cosmetics

by MAISON G. DENAVARRE, Ph.C., B.S.

Technical Editor of the American Perfumer & Essential Oil Review, Expert Consultant, Engineer Board, U. S. Army; Special Lecturer in Cosmetics, Wayne University, College of Pharmacy; Consulting Chemist

Seventeenth Installment

The sixteenth installment was published in the preceding issue. Subsequent installments will appear in forthcoming issues.

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CHAPTER IV
(*continued*)

Physical and Chemical Testing
Gravimetric and Volumetric Methods

C-392—SPOT ANALYSIS

(*Photographic Silver-Gelatin Paper as a Reagent in Spot Analysis. Ind. Eng., Anal. Ed.,* **12,** *369, 1940*)

Photographic paper developed to complete blackness becomes more brightly reflecting upon dipping in hot water. This brightening is prevented by all mercaptans and seleno alcohols, by certain heterocyclic substances containing imino groups, by salts of the nobler metals such as silver, by iodides, and by substances which easily split off selenium or tellurium. On this reaction is based a microanalytical test for these substances which is here described in detail and theoretically discussed. The reaction is carried out with a drop of the test solution; the limiting concentration is of the order of magnitude of 1 to 100,000.

Preparation of Reagent Paper. The kind of paper found suitable after a few preliminary tests is fully exposed by artificial light or daylight and is developed without any further precautions against light for as long as is approximately necessary for the production of the image upon that kind of paper. For this the usual developer and fixing baths are used.

Copious amounts of the developer and fixing baths are used and the used baths are poured away. The paper is then washed first about one hour in flowing tap water, and finally with distilled water which is changed many times. The paper is allowed to hang free, is dried in clean air, and is then cut in the usual form of reagent papers. The paper thus prepared is stable indefinitely. To test the reagent paper, a piece is dipped halfway into water at 70° to 80° C. In about 3 to 5 seconds a very distinct decrease of the blackening must be visible.

Carrying out the Reaction. A small drop of the solution

to be examined is placed upon the dry reagent paper and may be allowed to evaporate, or after 5 minutes the excess may be removed with a strip of filter paper. The reaction is more sensitive in the first case. The strip is then dipped, using tweezers, into hot water at 70° to 90° C. The reaction is positive if the spot upon which the drop was placed is black against a gray background. The used reagent paper can be dried and kept as a permanent record of this reaction.

Application of Reaction. Compounds which form slightly soluble silver salts give positive results, since according to the Paneth-Fajans adsorption rule these compounds can be easily adsorbed on silver. Among the organic compounds these are, first of all, the mercaptans, and in addition a number of substances containing the heterocyclic imino group. The mercaptans can be distinguished with fair certainty from the heterocyclic imino substances, since they give the reaction in acid as well as in alkaline medium, while the imino substances do not give the reaction in acid medium, although if present in very high concentration they may occasionally react. This behavior is in good agreement with the adsorption rule, since the mercaptans form slightly soluble silver salts in both acid and alkaline medium, while the imino substances do this only in neutral or best in alkaline medium. The reaction can accordingly be designated as strictly specific for mercaptans.

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C-394—STEARATES IN FACE POWDER

(*Mallinckrodt Method*)

Suspend 20 gms of the sample in about 200 ml of xylene and boil gently for 30 minutes. Carefully filter the mixture through a fine paper, using a filter aid. It is important that the filtrate be perfectly clear to avoid errors in the final analysis. The solution of stearate in xylene (filtrate) is then evaporated to near dryness and the residue ignited. The resulting metal oxides and carbonates are then taken up in hydrochloric acid and identified by the usual qualitative tests for magnesium, zinc, aluminum and calcium.

Author' Note: If aluminum stearate is present, it will form viscous solutions when dissolved in benzol or toluol and may aid as a means of separating it from the other stearates.

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Place a 2-gm sample into a 250 cc beaker. Add 50 cc neutral alcohol and let it soak for 30 minutes at room temperature with occasional stirring.

Filter and wash three times with neutral alcohol.

Titrate the combined filtrate and washings with 0.05 *N* sodium hydroxide.

Note: 3A alcohol is satisfactory. Add a few drops of phenolphthalein and neutralize with alkali if necessary.

$$\text{Percent free stearic acid} = \frac{cc \times N \times 270}{1000} = \frac{100}{2}$$

cc = sodium hydroxide used in titration
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(L. Yoder. U. S. Patent No. 2,322,906)

If two sterols, each containing one reactive double bond, are present in the same substrate, such as, for example, cholesterol and iso-cholesterol in wool grease, I use the following procedure to separate them:

I dissolve the mixed precipitate of cholesterol-acid addition product and iso-cholesterol-acid addition product obtained above in one of my solvents which may or may not contain some of the acid used to precipitate the addition products. Solution is obtained by heating the solvent to a sufficiently high temperature. On cooling, the large crystals of cholesterol-acid addition product crystallize and may be collected separately before the micro-crystals of iso-cholesterol-acid addition product crystallize. Then I neutralize each fraction with alkaline ion as shown above.

The following example is illustrative of my invention. One hundred parts of a non-saponifiable fraction of commercial wool grease, containing 25 parts of free cholesterol, were dissolved in 500 parts of ethylene chloride and the solution cooled to 10° C. A molar excess of gaseous hydrogen chloride was passed into the solution, which thickened to a paste. After one-half hour at the low temperature the crystalline precipitate was filtered out and redissolved, at a temperature of 70° C., in ethylene chloride containing dissolved hydrogen chloride gas. On cooling, the solution deposited large crystals of cholesterol-hydro-chloride which were filtered out. After a period of further cooling and standing, small crystals of iso-cholesterol-hydrochloride were removed from the filtrate. Each portion was treated with a 4 percent solution of sodium hydroxide and washed, producing 22 parts of cholesterol and 13 parts of iso-cholesterol in the form of alcohols.

C-398—STERYL SULFATES, SEPARATION FROM STEROLS

Cholesterol Separated from Cholesteryl Acetate
*(A. E. Sobel & P. E. Spoerri, J. Amer. Chem. Soc., **64**, 361-362, 1942)*

To 1.191 gm of cholesterol and 1.027 gm of cholesteryl acetate dissolved in 23 ml of benzene, was added 1.2 gm of pyridine sulfur trioxide. The mixture was heated to 56-60° for 40 minutes, with frequent shaking, under anhydrous conditions. The reaction mixture was then cooled and 110 ml of petroleum ether (30-60°) added. The precipitate was filtered off and washed twice with petroleum ether. This precipitate is pyridonium cholesteryl sulfate. The cholesterol may be regenerated by refluxing for 30 minutes in 100 cc of 70 per cent methyl alcohol which is 2 *N* with respect to sulfuric acid. On cooling, the crystals of pure cholesterol may be filtered off.

The mother liquors were carefully evaporated on a steam-bath at 60°. The weight of the desiccator-dried residue (cholesteryl acetate) was 1.011 gm. This was tested for the presence of pyridine sulfur trioxide. The tests were negative. Another portion of the solid was quantitatively examined for the presence of free cholesterol by the digitonin method; 20 mg contained between 0.01 to 0.02 mg of free cholesterol. Thus, a practically quantitative separation of free cholesterol was accomplished in one step.

Lanaesterol and Ergosterol also form sulfates and can likewise be separated from sterol esters when present in mixtures.

C-399—STILBESTROL OR DIETHYLSTILBESTROL

(N.N.R. 1944)

Dissolve approximately 10 mg of diethylstilbestrol in 10 cc of dilute alcohol and add three drops of 1 percent ferric chloride solution: a yellowish green color develops which changes to yellow. Add a few drops of 50 percent solution of antimony pentachloride in dry alcohol-free chloroform to a very dilute solution of diethylstilbestrol in the same solvent: a red colored solution is produced: more concentrated solutions give a heavy red precipitate. Dissolve 10 mg of diethylstilbestrol in concentrated sulfuric acid: an orange color is produced which disappears on dilution with water.

Transfer 0.1 gm of diethylstilbestrol to a 100 cc volumetric flask, add 6 cc of 10 percent sodium hydroxide solution and 30 cc of distilled water; shake to dissolve the diethylstilbestrol, then dilute to the mark with distilled water. Transfer 10 cc of the solution to a 250 cc iodine flask, fitted with an accurately ground stopper; add 10 cc of tenth-normal bromide-bromate solution; wash the walls of the flask and wet the stopper by the addition of 20 cc of distilled water. Quickly add 5 cc of 10 percent hydrochloric acid and insert the wet stopper. Shake the mixture thoroughly for several minutes, then set aside in the dark at 25° C and shake intermittently for 30 minutes. At the end of this period place 5 cc of 10 percent potassium iodide solution around the stopper. Remove the stopper just enough to allow the potassium iodide solution to enter the flask, shake thoroughly, rinse the stopper and sides of the flask with distilled water and titrate with fiftieth-normal sodium thiosulfate, using starch solution as the indicator near the end of the titration. Each cubic centimeter of tenth-normal bromide-bromate solution is equivalent to 2.064 mg of diethylstilbestrol.

The nature of the reaction between bromine and diethylstilbestrol leads to complications unless the conditions of a given procedure are strictly observed. It has been found that the procedure given above tends to yield results which are somewhat higher than 100 percent. This method of standardization must be considered tentative until more accurate analytic procedures are available.

C-400—STRONTIUM

(U.S.P.)

Calcium sulfate T. S. produces a white precipitate with solutions of strontium salts. Strontium compounds, moistened with hydrochloric acid, impart a crimson color to a non-luminous flame.

to be examined is placed upon the dry reagent paper and may be allowed to evaporate, or after 5 minutes the excess may be removed with a strip of filter paper. The reaction is more sensitive in the first case. The strip is then dipped, using tweezers, into hot water at 70° to 90° C. The reaction is positive if the spot upon which the drop was placed is black against a gray background. The used reagent paper can be dried and kept as a permanent record of this reaction.

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(*N.N.R. 1944*)

Dissolve approximately 10 mg of diethylstilbestrol in 10 cc of dilute alcohol and add three drops of 1 percent ferric chloride solution: a yellowish green color develops which changes to yellow. Add a few drops of 50 percent solution of antimony pentachloride in dry alcohol-free chloroform to a very dilute solution of diethylstilbestrol in the same solvent: a red colored solution is produced: more concentrated solutions give a heavy red precipitate. Dissolve 10 mg of diethylstilbestrol in concentrated sulfuric acid: an orange color is produced which disappears on dilution with water.

Transfer 0.1 gm of diethylstilbestrol to a 100 cc volumetric flask, add 6 cc of 10 percent sodium hydroxide solution and 30 cc of distilled water; shake to dissolve the diethylstilbestrol, then dilute to the mark with distilled water. Transfer 10 cc of the solution to a 250 cc iodine flask, fitted with an accurately ground stopper; add 10 cc of tenth-normal bromide-bromate solution; wash the walls of the flask and wet the stopper by the addition of 20 cc of distilled water. Quickly add 5 cc of 10 percent hydrochloric acid and insert the wet stopper. Shake the mixture thoroughly for several minutes, then set aside in the dark at 25° C and shake intermittently for 30 minutes. At the end of this period place 5 cc of 10 percent potassium iodide solution around the stopper. Remove the stopper just enough to allow the potassium iodide solution to enter the flask, shake thoroughly, rinse the stopper and sides of the flask with distilled water and titrate with fiftieth-normal sodium thiosulfate, using starch solution as the indicator near the end of the titration. Each cubic centimeter of tenth-normal bromide-bromate solution is equivalent to 2.064 mg of diethylstilbestrol.

The nature of the reaction between bromine and diethylstilbestrol leads to complications unless the conditions of a given procedure are strictly observed. It has been found that the procedure given above tends to yield results which are somewhat higher than 100 percent. This method of standardization must be considered tentative until more accurate analytic procedures are available.

C-400—STRONTIUM

(*U.S.P.*)

Calcium sulfate T. S. produces a white precipitate with solutions of strontium salts. Strontium compounds, moistened with hydrochloric acid, impart a crimson color to a non-luminous flame.

C-401—SUCROL OR DULCIN

(*A.O.A.C.*)

I. Morpurgo Method—Tentative

Evaporate about 100 ml of the sample, or of the aqueous extract prepared as directed and neutralized with acetic acid, to a sirupy consistency after the addition of about 5 gm of basic $PbCO_3$, and extract the residue several times with 90 percent alcohol. Evaporate the alcoholic extract to dryness, extract the residue with ether, and allow the ether to evaporate spontaneously in a porcelain dish. Add 2 or three drops each of phenol and H_2SO_4 and heat for about 5 minutes on a water bath. Cool, transfer to a test tube, and overlay with NH_4OH or NaOH solution with the least possible mixing. The presence of dulcin is indicated by the formation of a blue color at the zone of contact.

II. Jorissen Method—Tentative

Suspend the residue from the ether extract obtained as directed in about 5 ml of H_2O, add 2-4 ml of an approximately 10 percent solution of $Hg(NO_3)_2$, and heat for 5-10 minutes on a steam bath. In the presence of sucrol a violet blue color is formed. On the addition of PbO_2 the color changes to a deep violet.

C-402—SUCROSE, REACTION FOR—RAYBIN

(*Merck Index*)

Dissolve 40-40 mg of the sugar in 5 cc of 7 percent NaOH, add 7-10 mg diazouracil, and shake until dissolved, keeping the solution cold. If sucrose is present, a blue-green color develops. The addition of a magnesium salt produces a stable precipitate. Other sugars do not interfere.

C-403—SUGAR

Separation and Identification of Sugars From Mixtures (*R. W. Liggett, K. M. Grodon and Charles D. Hurd, Trans. Illinois State Acad. Sci.*, **34**, *No. 2, 121, 1941*)

Completely propionated derivatives of sugars were prepared by the action of $(EtCO)_2O$ and pyridine on the sugar. These derivatives for maltose, gentiobiose, trehalose, sucrose, xylose and arabinose are crystalline and distillable at pressures of 0.01-0.0001 mm. Noncrystalline propionates of sugars can be cleaved into crystalline derivatives without rupture of the glycoside linkages. This procedure of propionating and distillation has been applied to the analysis of corn sirup, "hydrol," malt extract, etc., with good results. (*Thru C. A.* **36**, *2530, 1942.*)

C-404—SUGARS, MICROSCOPIC IDENTIFICATION OF

(*J. A. Quense & W. M. Dehn; Ind. Eng. Chem., Anal. Ed.*, **11**, *555, 1939*)

A few drops of a saturated aqueous solution of the unknown sugar in a small vial are treated with sufficient acetone, alcohol, acetonitrile, or 1,4-dioxane to cause crystallization. If the precipitating liquids are not added too rapidly, the sugar solutions usually become opalescent before crystallization. When these opalescent liquids are observed under the microscope, the crystals can be studied during growth. Varying speeds of crystallization and the formation of colloidal suspensions may render such observation impossible. If immediate crystallization does not occur, insufficient sugar has been used and another trial may be necessary. Should a sirup precipitate, crystallization can frequently be effected by scratching the slide.

C-405—SULFATE

(*U.S.P.*)

Solutions of sulfates yield with barium chloride T.S. a white precipitate, which is insoluble in hydrochloric or nitric acid. With lead acetate T.S. sulfates yield a white precipitate soluble in ammonium acetate solution. Hydrochloric acid produces no precipitate, when added to solutions of sulfates (difference from thiosulfates.)

C-406—SULFIDE

(*U.S.P.*)

When treated with an acid, many sulfides yield hydrogen sulfide, recognizable by its characteristic, pungent odor.

C-407—SULFIDES IN DEPILATORIES, DETERMINATION OF

(*E. M. Hoshall, J. Assoc. Off. Agr. Chem.* **23**, *437, 1940*)

Reagents: (a) Arsenious acid solution.—0.1 *N*.

(b) Standard Iodine Solutions.—0.1 *N*, standardized against (a).

Determination: Pipet exactly 50 ml of 0.1 *N* As_2O_3 solution into a 250 ml g.s. volumetric flask. Weigh a sample of the depilatory containing less than 0.12 gram of sulfide calculated as H_2S and transfer to the flask. Add 20 ml of cooled H_2SO_4 (1 plus 1), stopper, and shake vigorously until all reactions have subsided and the sample is decomposed. Cool to room temperature, dilute to volume with distilled water, and filter through a dry filter into a dry flask, rejecting the first 20 ml of filtrate. Withdraw exactly 100 ml of the clear filtrate, add 5 ml of starch solution and sufficient 0.1 *N* iodine solution to produce a blue tint. Make alkaline with solid $NaHCO_3$, adding 1-2 gm in excess. Titrate with 0.1 *N* iodine solution. Calculate net ml of 0.1 *N* As_2O_3 used.

Factors: 1 ml 0.1 *N* As_2O_3 = 1 ml 0.1 *N* Iodine

0.002556	gm	H_2S
0.005854	"	Na_2S
0.01802	"	$Na_2S\ 9H_2O$
0.003446	"	Li_2S
0.005411	"	CaS
0.01261	"	BaS
0.008977	"	SrS

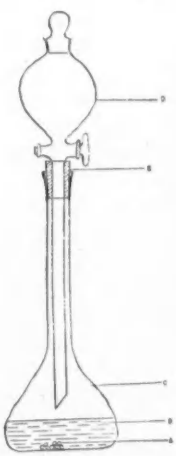

Figure 127. Sulfides in Carbonates

Note 1—The presence of small quantities of carbonates does not affect the results obtained by this method. If, however, appreciable quantities are present, the CO_2 liberated on acidification will force the stopper from the flask and cause loss of H_2S. The arrangement in Figure 127 will prove effective for use in the presence of carbonates. Add the sample (a) (Figure 130) to the excess of 0.1 *N* As_2O_3 (B) in the 250 ml flask (C). Place a 60 ml separatory funnel (D) in the neck of the flask with the tip of the stem just above the surface of the liquid (B).

Place 20 ml of cooled H_2SO_4 (1 + 1) and exactly 10 ml of 0.1 *N* As_2O_3 in the separator, open the stop-

cock slightly, and allow the acid to flow into the solution. The liberated CO_2 and traces of H_2S will bubble up through the column of acid, and by gentle shaking the CO_2 can be removed. When the reaction has subsided wash the contents of the separator into the flask, make to volume with distilled water, and proceed as directed in the method, beginning "filter through a dry filter."

C-408—SULFITE

(*U.S.P.*)

When treated with hydrochloric acid, sulfites and bisulfites yield colorless sulfur dioxide, recognizable by its pungent odor which is the same as the odor of burning sulfur. This gas blackens filter paper moistened with mercurous nitrate T.S.

C-409—SULFITE IN THE PRESENCE OF THIOSULFATE, TEST FOR—VOTOCEK

(*Merck Index*)

Mix a solution of 0.075 gm fuchsin in 300 cc water with a solution of 0.025 gm malachite-green in 100 cc water. To 2-3 cc of the liquid to be tested add a few drops of this solution. Sulfites effect immediate decolorization but thiosulfates or thionates do not.

C-410—SULFITE & BISULFITE IN MIXTURES

(*Bosshard & Grob, Chem. Ztg.*, **37**, *465, 1913*)

Accurately weigh about 1 gm of the sample or its equivalent, into a flask containing 50 cc of distilled water. Add methyl orange as indicator and titrate with normal hydrochloric acid converting sulfite to bisulfite. The volume of standard acid used determines the amount of sulfite present. Each cc of Normal hydrochloric acid used is equivalent to 0.1260 gm Na_2SO_3.

Now add 1 gm of sodium chloride and 300 cc of a saturated solution of mercuric chloride in water. Hydrochloric acid is set free equivalent to the amount of *total bisulfite* present. Titrate with standard sodium hydroxide using phenolphthalein as indicator. Each cc of *N* sodium hydroxide = 0.1040 gm $NaHSO_3$.

Subtract the original hydrochloric acid titration from sodium hydroxide titration and multiply the difference by 0.1040 to get grams of sodium bisulfite present as such.

C-411—SULFITE, THIOSULFATE AND CARBONATE, ANALYSIS OF A MIXTURE OF

(*A. Briau, Ann. chim. anal. chim. appl.* **19**, *38-40, 1937*)

Dissolve a convenient weight of the sample in 100 ml of water, cool to about 8° and titrate with *N* HCl to a phenophthalein end point. This serves to neutralize the Na_2CO_3 to $NaHCO_3$. To determine the $Na_2S_2O_3$ and Na_2SO_3 add a weighed portion, or a concentrated solution of the salts, to an excess of 0.1 *N* I_2 solution containing a known volume of 0.1 *N* HCl. Determine the excess I_2 by titration with $Na_2S_2O_3$ and the total acid with 0.1 *N* NaOH to a methyl orange end point. The last titration serves to neutralize the HCl that was added in excess at the start and to neutralize the HI formed by the oxidation of the Na_2SO_3 by I_2 and water. By this method of analysis, good results were obtained in the analysis of a synthetic mixture of the 3 salts whereas the method of Geschwind and Cliques, which is recommended in French texts gives low results for Na_2SO_3 and high results for $Na_2S_2O_3$.

SULFOCARBOLATES
See C-477

C-412—SULFUR, FLAME TEST FOR

(*German Patent 713,375, Thru C. A.* **38**, *1450, 1944*)

The liquid or solid to be tested is treated with nascent H to form H_2S. The latter is passed into a H flame. The sulfur appears as blue in the middle of the flame and can be thus detected or quantitatively measured.

C-413—SULFUR OLIVE OILS, SILVER BENZOATE TEST FOR (CARBON BISULPHIDE EXTRACTED)

See "OLIVE OIL" C-269

C-414—SULFUR OLIVE OILS, COIN TEST FOR (CARBON BISULPHIDE EXTRACTED)

See "OLIVE OIL" C-269

C-415—SUBLIMED SULFUR

Flowers of Sulfur
(*U.S.P.*)

Assay. Dry about 1 gm of sublimed sulfur over sulfuric acid for 18 hours, weigh accurately, and transfer it to a flask containing 50 cc of solution of potassium hydroxide in diluted alcohol (1 in 10). Boil the mixture until the liquid is transparent and the sulfur is dissolved, then dilute it with distilled water to measure exactly 250 cc. Transfer exactly 25 cc of the solution to a 400 cc beaker, add 50 cc of hydrogen peroxide T.S. or more if necessary, to oxidize the sulfur completely, and heat on a water bath for 1 hour. Acidulate the liquid with hydrochloric acid, dilute it with 200 cc of distilled water, heat to boiling, and add hot barium chloride T.S. in small portions until no further precipitation takes place. Heat on a water bath for 1 hour, then collect the precipitate on a filter, wash, dry, and ignite to constant weight. Perform a blank test using the same quantities of the reagents and in the same manner, and make any necessary correction. The weight of the barium sulfate, multiplied by 0.1373 indicates its equivalent of sulfur.

C-416—SULFUR, COLOR REACTION FOR

(*L. van Itallie, Pharm. Weekblad,* **75**, *1445, 1938*)

Limit of sensitiveness is 0.005 mg. Treat test solution with 1 ml of pyridine and 2 drops sodium hydroxide solution; if sulfur is present a pale blue color is developed.

C-417—A SUPERSENSITIVE SCHIFF'S ALDEHYDE REAGENT

(*Walter C. Tobie,*
Ind. & Eng. Chem. Anal. Ed. **14**, *405, 1942*)

Preparation of Reagent. Add 0.500 gram of basic fuchsin to 500 ml of water, and pass in sulfur dioxide until the weight has increased by 1.0 gm. The solution may retain a considerable portion of its red color, but this will disappear upon standing overnight in a stoppered container, so that the last of the suspended fuchsin dissolves. Make to a volume of 1 liter. The solution will have a brown discoloration due to traces of impurities which are always present in commercial fuchsin. To re-

move the discoloration, add 1.0 gm of decolorizing carbon, agitate, and filter by gravity, keeping the filter covered with a watch glass to prevent undue contact with the air. If a suitable decolorizing carbon has been used, the filtrate will be completely colorless. A less sensitive form of the colorless reagent, containing 5.0 grams of sulfur dioxide per liter and adapted for the determination of aldehydes in distilled alcoholic liquors, has been previously reported.

Determination of Free Aldehyde Groups in Simple Aldoses. Before the reagent is used for testing unknowns, control tests should be run against pure samples of glucose (dextrose) and sucrose. To 0.2 gm portions of the carbohydrates in 7.5-cm (3-inch) test tubes, add either 1.0 or 2.0 ml of the reagent. The reagent should be pipetted accurately, and the carbohydrates weighed on a centigram balance or a sensitive decigram balance. Let the tubes stand at room temperature with occasional swirling to dissolve the carbohydrates. After one hour, the tubes containing dextrose show a light but distinct pink color, while those containing sucrose remain completely colorless. If desired, the test may be allowed to run for only 15 or 30 minutes, but in this case positive reactions (pink color) are correspondingly weaker. The colors continue to darken for about 24 hours, but after this time a pink color appears in the sucrose controls.

The regular determination is run in exactly the same fashion. One milliliter of reagent generally gives a more intense pink color with any given aldose than do 2 ml, since there is only half as much sulfurous acid present in proportion to the small amount of free aldehyde present. However, the use of 2 ml is probably preferable, since it diminishes the weak positive tests obtained with carbohydrates other than simple aldoses, and permits d-galactose to dissolve completely. Certain compounds are relatively insoluble in both 1 and 2 ml of the reagent, but since their reactions are essentially negative, this is of minor importance. If 1 ml is used, it is desirable to run a test on glucose each time the test is made and to regard pink colors weaker than that obtained with the glucose as "negative" as regards the presence of simple aldoses.

TABLE 34

INTENSITY OF PINK COLOR PRODUCED BY SUPERSENSITIVE SCHIFF'S ALDEHYDE REAGENT

(After one hr. at room temperature, 25° to 30°C.)

Compound	Chemical Type	Intensity of Pink Color	
		1 ml of reagent	2 ml of reagent
l-Arabinose	Aldopentose	Intense	Very strong
l-Xylose	Aldopentose	Intense	Strong
Rhamnose	Methyladopentose	Very strong	Light
d-Mannose	Aldohexose	Very strong	Light
d-Galactose	Aldohexose	Strong[a]	Light
d-Glucose	Aldohexose	Light	Faint
Maltose	Disaccharide	Faint	Faint
Cellobiose	Disaccharide	Faint[a]	Very faint
Melibiose	Disaccharide	Faint[a]	Very faint[a]
Lactose	Disaccharide	Faint[a]	Very faint[a]
Melezitose	Trisaccharide	Faint	Very faint
d-Sorbitol	Polyalcohol	Very faint	Colorless
Trehalose	Disaccharide	Very faint	Colorless
Salicin	Glucoside	Very faint[a]	Colorless[a]
Dulcitol	Polyalcohol	Very faint[a]	Colorless[a]
Levulose	Ketohexose	Colorless	Colorless
Sucrose	Disaccharide	Colorless	Colorless
Raffinose	Trisaccharide	Colorless[a]	Colorless[a]
Inulin	Polysaccharide	Colorless[a]	Colorless[a]
Esculin	Glucoside	Colorless[a]	Colorless[a]
d-Mannitol	Polyalcohol	Colorless[a]	Colorless
i-Inositol hydrate		Colorless[a]	Colorless[a]

[a]Compound wholly or partly insoluble in the amount of reagent used.

C-418—SULFIDE SULFUR IN PRECIPITATED CALCIUM CARBONATE

(*T.G.A. Method No. 16*)

The apparatus to be used in this determination is shown in the accompanying drawing. This all glass apparatus is equipped with standard, interchangeable ground glass joints.

1. Prepare sodium plumbite solution (Doctor's Solution), as follows: Dissolve 125 gms of sodium hydroxide in 1 liter of distilled water. Add 60 gm of lead oxide (PbO) shake vigorously for 15 minutes or allow to stand 24 hours with occasional shaking. Allow to settle and filter through a Gooch or Buckner. Store the filtrate in tightly stoppered glass bottles using either a cork or sulfur free rubber stopper.

2. Weigh out a 5 gm. sample of the precipitated calcium carbonate and transfer to the dry, clean 500 ml flask, and assemble the apparatus as shown.

3. Place a small plug of glass wool in the lower part of the exit tube. In the narrow upper part of the exit tube place a narrow strip of filter paper moistened with the sodium plumbite solution. The paper should not be "dripping wet."

4. Fill the dropping funnel with 1:1 hydrochloric acid.

5. Allow the acid to fall dropwise on the sample. Shake occasionally to mix the acid with the sample. A slow steady liberation of carbon dioxide is desired. Continue the addition of acid until the sample is dissolved.

6. A darkening of the lower end of the sodium plumbite moistened paper indicates the presence of Sulfide Sulfur.

Notes: (a) This method will detect traces of sulfide sulfur. Hence the apparatus must be thoroughly cleaned. The usual dichromate solution is recommended for this purpose.

(b) At times, in spite of the plug of glass wool, the hydrochloric acid may be carried to the upper part of the outlet tube by mechanical entrainment. As a result a paper already darkened by sulfide sulfur may later on become white again, hence the strip of paper should be observed at frequent intervals.

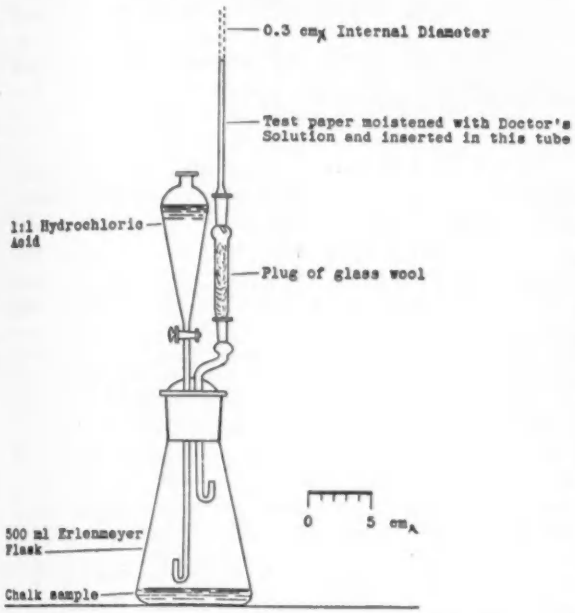
0.3 cm Internal Diameter
Test paper moistened with Doctor's Solution and inserted in this tube
1:1 Hydrochloric Acid
Plug of glass wool
0 5 cm
500 ml Erlenmeyer Flask
Chalk sample

Figure 128. With light chalks the time factor is important—no more time than necessary should be taken.

C-419—SULFUR AND SULFIDES IN PETROLEUM PRODUCTS

(T.G.A. Method No. 1)

One hundred (100) gm of the product to be tested are melted and kept on a water bath at a temperature of 95° to 98°C (203° to 208.4°F). A strip of freshly polished copper ½ inch in width is placed in the melted product so as to be partially immersed therein and is allowed to remain for ten (10) minutes. Tarnishing of the copper strip as compared with freshly polished copper indicates the presence of free sulfur or sulfides.

C-420—DETERMINATION OF SULFUR IN OILS

(Roy P. Hudson
Chemist Analyst **22,** *No. 1, 15, 1933)*

In a recent issue of The Chemist-Analyst (Vol. 20, No. 6) Mr. George C. Griswold describes a method for determining sulfur in oil, under the title "Sulfur in Oils—Original Scheme."

While the method described is undoubtedly a good one it requires considerable time. I have found the following method to be quite accurate and reasonably rapid:

Weigh 1 gm of oil into a large porcelain crucible and treat with a mixture of 10 cc conc. HNO_3 and saturated bromine water. Place the crucible and contents on a hot plate and allow to digest at a medium temperature for a period of about three hours. After cooling, add Na_2CO_3, in successive small portions, until the acid solution in the crucible is neutralized. Heat over a Bunsen burner until fusion is complete.

The contents of the crucible are now washed into a beaker and made slightly acid with HCl. The sulfur is precipitated as $BaSO_4$ by the addition of 10 cc of a 10 percent solution of $BaCl_2$. After standing in a warm place until the precipitate has settled, the $BaSO_4$ is removed by filtration, washed, ignited and weighed.

In making the fusion it is, of course, necessary to take the usual precautions to avoid contaminating the contents of the crucible with the sulfur from the flame of the Bunsen burner.

C-421—TALC, PURIFIED

(U.S.P.)

Mix 0.5 gm of purified talc with about 0.2 gm of anhydrous sodium carbonate and 2 gm of anhydrous potassium carbonate and heat the mixture in a platinum crucible until fusion is complete. Cool, and transfer the fused mixture to a dish or beaker with the aid of about 50 cc of hot distilled water. Add hydrochloric acid to the liquid until it ceases to cause effervescence, then add 10 cc more of the acid, and evaporate the mixture to dryness on a water bath. Cool, add 20 cc of distilled water, boil, and filter the mixture: an insoluble residue of silica remains. Dissolve in the filtrate about 2 gm of ammonium chloride, and add 5 cc of ammonia T.S. Remove by filtration any precipitate which may form, and add sodium phosphate T.S. to the filtrate: a white, crystalline precipitate of magnesium ammonium phosphate separates.

Acid Soluble Substances: Digest 1 gm of purified talc with 20 cc of diluted hydrochloric acid, at 50°C for 15 minutes, and filter: the residue from 10 cc of filtrate, evaporated to dryness and ignited to constant weight, is not more than 8 mg.

Reaction and Soluble Substances: Boil 10 gm of purified talc with 50 cc of distilled water for 30 minutes, adding distilled water from time to time to maintain approximately the original volume, and filter. The filtrate is neutral to litmus paper. One half of this filtrate, when evaporated and dried to constant weight at 110°C yields not more than 5 mg of residue.

Water Soluble Iron: The remaining half of the filtrate obtained in the test for reaction and soluble substances, after being slightly acidulated with hydrochloric acid, does not acquire a blue color upon the addition of potassium ferrocyanide T.S.

C-422—TALC AND KAOLIN, REACTIONS FOR THE IDENTIFICATION OF

(V. Lucas. Rev. Assoc. Brasil. Farm. **20,** *424, 1939. Anales farm bioquim. (Buenos Aires), Supl.* **11,** *34, 1940.)*

Mix 1 gm of the powder with 1 cc concentrated H_2SO_4, heat until white fumes appear, cool, dilute with 10 cc water and filter. To the filtrate slowly add 15 percent NaOH solution. A Gelatinous precipitate soluble in excess of NaOH [$Al(OH)_3$] indicates kaolin and a precipitate insoluble in excess NaOH [$Mg(OH)_2$] indicates talc. *(Thru C. A.* **34,** *7214, 1940.)*

C-423—TANNIC ACID

(U.S.P.)

Solubility: Tannic acid is very soluble in water, in acetone, and in alcohol. It is freely soluble in diluted alcohol but only slightly soluble in dehydrated alcohol. It is almost insoluble in benzene, in choloroform, in ether, and

in petroleum benzin. One gm of tannic acid dissolves in about 1 cc of warm glycerin.

Identification: A. The addition of a small quantity of ferric chloride T.S. to an aqueous solution of tannic acid produces a bluish black color or precipitate.

B: An aqueous solution of tannic acid produces precipitates in aqueous solutions of most of the alkaloidal salts, and also in solutions of albumin, of gelatin and of starch.

C-424—TANNIC ACID, TESTS FOR

(*D. B. Dott, Pharm. J.* **144,** *137, 1940*)

Samples of tannic acid which have passed the B. P. test may still be unsatisfactory in practice. Four samples were dissolved in collodion (0.5 gm in 10 ml). Sample (A) gave a very turbid solution; (B) a nearly clear solution in which a deposit slowly formed; (C) a clear straw colored solution; (D) a clear solution of the usual brownish tint which soon changed to green, although there was no evidence of metallic contamination. Tannic acid should dissolve readily in acetone giving a sirupy 1 in 2 solution, but with 0.5 gm in 10 ml of acetone, sample (A) showed a considerable amount of insoluble matter; (B) dissolved to a nearly clear solution, but gradually deposited a brown sediment, and (C) gave a nearly colorless clear solution. The cupric acetate precipitation test was carried out by dissolving 1 gm of the tannic acid in 20 ml of water and adding 1.5 gm of cupric sulfate dissolved in 40 ml of water, then 1.7 gm of crystalline sodium acetate in 10 ml of water, and lastly 0.5 ml of acetic acid. After 3 or 4 hours the precipitate was collected, washed, dried and weighed. Sample (A) gave 1.143 gm; (B) 1.179 gm; (C) 1.163 gm. A larger number of samples would have to be examined before deciding on maximum and minimum figures. (*Thru The Analyst* **65,** *424, 1940.*)

C-425—TARTARIC ACID (*U.S.P.*)

Assay: Place about 2 gm of tartaric acid, previously dried over sulfuric acid for 5 hours and accurately weighed, in an Erlenmeyer flask. Dissolve it in 40 cc of distilled water, and titrate with normal sodium hydroxide using phenolphthalein T.S. as the indicator. Each cc of normal sodium hydroxide is equivalent to 0.07505 gm of $H_2C_4H_4O_6$. Each gm of tartaric acid, previously dried over sulfuric acid for 5 hours, consumes not less than 13.28 cc and not more than 13.40 cc of normal sodium hydroxide.

C-426—TARTARIC, CITRIC AND MALIC ACIDS, REACTIONS FOR—TOCHER

(*Merck Index*)

I. On heating the acid with concentrated H_2SO_4, tartaric acid gives a carbonaceous mass, citric acid a yellow solution, and malic acid a dark solution.

II. Tartaric acid solution is colored red by cobalt nitrate. The solution becomes colorless on the addition of NaOH solution then blue on boiling and colorless again on cooling. Citric acid solution is colored deep blue by cobalt nitrate and NaOH, as is a solution of malic acid.

III. On heating malic acid with diluted H_2SO_4 and potassium dichromate, a fruity odor is evolved.

C-427—TARTARIC AND CITRIC ACID, SIMPLE TEST FOR

(*Stevens. Ind. Eng. Chem. thru Ztr. H.,* **70,** *16, 1929*)

Stevens heated 0.2 gm of the substance on the end of a spatula until completely burned and then removed it from the flame. If tartaric acid is present the burning mass will swell up like a dry ball and burn with a blue flame and the cooling residue will crumble up to unburned coals.

Citric acid, similarly treated, becomes liquid, burns with a yellow flame and the residue will be of a brown color. (*Thru Druggists Circular, p. 48, Oct. 1929.*)

C-428—TARTARIC, CITRIC AND ACONITIC ACIDS, COLOR REACTIONS FOR

(*O. Furth and H. Herrmann, Biochem. Z.* **280,** *448-57, 1935*)

On warming with pyridine and Ac_2O tartaric acid gives an emerald green, citric acid a carmine red and aconitic acid a violet-red color reaction, while other dicarboxylic acids give either a brown color or none at all. The pigments formed are high-molecular condensation products, sensitive to O_2 and soluble in pyridine or acetone. Under the influence of the Ac_2O a chromogen is produced from the dicarboxylic acids, which is converted to the pigment by the pyridine. The pigments from citric and aconitic acids were obtained in the form of beautiful rosette-shaped crystals which had the composition $C_8H_{10}O_{10}$ and $C_{12}H_{10}O_{11}$, i.e., of an acetylated dihydroxycitric and aconitic anhydride, respectively. The color reaction is extremely sensitive and the presence of even 1 gamma of the dicarboxylic acid can be detected by its yellow fluorescence in the ultraviolet light of a Zeiss fluorescent lamp. (*Thru C. A.* **30,** *54, 1936.*)

C-429—TARTRATE

(*U.S.P.*)

With neutral solutions of tartrates, silver nitrate T.S. produces a white precipitate. Upon dissolving this precipitate in just sufficient ammonia T.S. and warming, metallic silver is deposited on the side of the test tube, forming a mirror. On adding to an aqueous solution of tartaric acid or of a tartrate, acidified with a few drops of acetic acid, a drop of ferrous sulfate T.S., then a few drops of hydrogen peroxide T.S. and finally an excess of sodium hydroxide T.S., a purplish violet color is produced.

C-430—TARTRATES-FENTON REACTION

(*I. S. Shupe, J. Assoc. Off. Agr. Chem.* **26,** *477, 1943*)

The Fenton color reaction for tartrates offers a generally specific and sensitive method for the detection of tartaric acid and its salts. Thus citric, malic, succinic, oxalic and acetic acids give negative reactions. So do sugars. References to the reaction often fail, however, to give adequately detailed, procedural directions. Certain conditions must be maintained or the test will lose its sensitivity, and may fail altogether.

Typical directions state, "If to an aqueous solution of the acid or soluble tartrate, 1 drop of FeSo solution, a few drops of H_2O_2, and an excess of NaOH be added, a deep violet color is produced."

A limited investigation of the Fenton test has shown that the relative concentrations of ferrous sulfate and hydrogen peroxide are of great importance. The test is successful only if an excess of ferrous sulfate is present. If enough hydrogen peroxide is added to oxidize all the ferrous sulfate the test gives neither blue nor purple color.

On the other hand, the presence of excess iron obscures the color, iron hydroxide being precipitated when alkali is added.

Chlorides, phosphates, and great quantities of citrates interfere with the test, whereas the presence of sulfates and acetates does not.

The following revised directions have been used successfully for the detection of tartrates in cosmetics: To 5 ml of a solution of tartaric acid, or a tartrate acidified with acetic acid, add 1 drop of a 5 percent solution of $FeSO_4$ and 1 drop of a 3 percent solution of H_2O_2. Mix and add 5 ml of 10 percent NaOH (w/v).

In the presence of 0.1 percent or more of tartaric acid a purple color develops.

Note: The test may fail in the presence of chlorides, phosphates, and large quantities of citrates.

C-431—TETRASODIUM PYROPHOSPHATE ($Na_4P_2O_7$) IN SOAP PRODUCTS, DETERMINATION OF

(*A.O.C.S.*)

The method of analysis depends upon an indirect determination by the titration of the H_2SO_4 liberated by the action of zinc sulfate on an acid pyrophosphate. The analysis for pyrophosphate is inaccurate in the presence of polyphosphates.

Reagents: 1. Neutral Ethyl Alcohol (94 percent or higher). Denatured Alcohol, Formulas 30 or 3A may be used.

2. 0.5 Normal HCl.

3. 0.10 Normal H_2SO_4.

4. Zinc Sulfate, 7 percent solution. Dissolve 125 gm of C.P. $ZnSO_4.7H_2O$ in water and make up to a liter, filter and adjust the pH to exactly 3.8 with the glass electrode using 0.10 *N* H_2SO_4.

5. 0.5 Normal NaOH. See procedure for standardization.

Procedure: Accurately weigh a sample containing an equivalent of approximately 1 gm of $Na_4P_2O_7$ and digest with 200 ml of hot, freshly boiled, neutral alcohol. Filter through a filter paper or Gooch crucible with suction, washing with hot alcohol until free from soap. Change receivers and wash the alcohol insoluble portion remaining on the filter with hot water until washings are neutral to phenolphthalein. Transfer to a suitable vessel, cool and add sufficient distilled water so that the resulting solution will just cover the electrodes of a glass electrode titration assembly. Adjust the pH of the solution to exactly 3.8 with 0.5 *N* HCl. Add 50 ml of the 7 percent zinc sulfate solution and allow 5 minutes for this reaction to become complete as shown by the pH becoming constant. Titrate the liberated acid with 0.5 *N* NaOH until a pH of 3.8 is again reached. This titration is a measure of the pyrophosphate content. Standardize the 0.5 *N* NaOH against C.P. $Na_4P_2O_7$ prepared by recrystallizing the technical product three times from water and igniting at 400°C to constant weight.

Calculations:

$$\frac{\text{Ml. 0.5 } N \text{ NaOH} \times F \times 100}{\text{Wt. of Sample}} = \text{percent } Na_4P_2O_7.$$

Where F = grams of $Na_4P_2O_7$ equivalent to 1.0 ml of the NaOH solution used for titration as calculated by standardization against the C.P. $Na_4P_2O_7$.

C-432—THIOGLYCOLIC ACID, IDENTIFICATION OF

(*J. H. Jones, J. Assoc. Off. Agr. Chem.*, **27**, *575, 1944*)

The following procedure is tentatively suggested for the utilization of these properties in the identification of thioglycolic acid in permanent wave solutions.

Reagents

Iodine Solutions. Approximately 1*N* and approximately 0.1 *N*.

Sodium bisulfite solution. 5 percent.

Benzene-ethyl acetate solvent. Mix 9 volumes of benzene and 1 volume of anhydrous ethyl acetate.

Procedure

Place an aliquot of the solution containing 0.2-1.0 gm of thioglycolic acid (10 ml is usually sufficient for permanent wave solutions) in a separatory funnel and HCl until the solution is slightly acid. Use starch solution as an indicator and oxidize the sulfur compounds with approximately 1 *N* iodine. Decolorize by dropwise addition of the bisulfite solution, filter if any water-ilsoluble compounds have been produced, and adjust to the exact starch-iodine and point with 0.1 *N* iodine. Add concentrated HCl, equal to about 50 percent of the volume of the solution at this point, extract with 20 ml of $CHCl_3$, and discard the $CHCl_3$ layer. Extract with three portions of ethyl ether (50, 25, and 25 ml), combine the ether extracts, and wash with two 10 ml portions of water. (A small amount of iodine in the ether layer at this point does no harm.) Filter the ether through a pledget of cotton, placed in a long stem funnel, and evaporate to dryness on a steam bath. Dissolve the residue in the minimum amount of boiling benzene-ethyl acetate solvent, filter, cool, and let stand until the crystals form. (It may be necessary to scratch the sides of the container vigorously to induce crystallization.) Filter, wash the white precipitate with cold benzene, dry, and determine the melting point. (Melting points listed by Mullikan for dithiodiglycolic acid are 100° and 107° C.)

To determine the equivalent weight of the acid, dissolve an accurately weighed quantity in a small quantity of water, add 2-3 drops of phenolphthalein indicator, and titrate with standard NaOH. (The theoretical equivalent weight is 91.2.)

The proposed procedure has not been applied to depilatories, but with suitable modifications it could undoubtedly be used to identify thioglycollates in this type of preparation.

The proposed extraction is not quantitative, but sufficient dithiodiglycolic acid for identification can be obtained from 0.2 gm of thioglycolic acid. Experiments are in progress to determine whether the extraction can be made quantitative by suitable modifications. If quantitative extraction could be obtained, it would provide a method for the determination of thioglycolic acid in the presence of other reducing compounds.

C-433—THIOGLYCOLLATES IN DEPILATORIES, DETERMINATION OF

Hoshall's Method

(*E. M. Hoshall, J. Assoc. Off. Agr. Chem.* **23**, *727, 1940*)

Detection: 1. Ammonium Molybdate Test: Hamence used thioglycolic acid to differentiate molybdenum from

tungsten. This test may be adapted to the detection of thioglycollates.

If a dilute solution of the thioglycollate is added to 1 ml of a 3 percent solution of $(NH_4)_6Mo_7O_{24}+4H_2O$ (Merck's reagent grade) containing 0.5 ml of Hcl and the mixture is diluted to 50 ml, a greenish-yellow to greenish-yellow-brown color results, the intensity of which is proportionate to the quantity of thioglycollate present. When the solution is rendered ammoniacal, the color fades to a green, a brownish precipitate is formed and the supernatant liquid slowly becomes colorless. Limited investigation indicates that this reaction can be adapted to the quantitative determination of thioglycollates. This investigation is being continued.

2. Copper Sulfate Test: With a 5 percent solution of $CuSO_4$, thioglycollate gives a violet-brown precipitate soluble in dilute acids and in dilute ammonia.

3. Ferric Chloride Test: An evanescent indigo-blue color is formed in neutral or slightly acid solution when a few drops of 0.1 *N* $FeCl_3$ are added to a solution containing thioglycollates. A further addition of $FeCl_3$ causes a color change to green and then to a purple-brown, which fades to a yellow with the formation of a precipitate.

4. Strongly acidified solutions of thioglycollates yield an unmistakably mercaptan-like odor.

When these tests are applied to thioglycollate depilatories, a portion of the clear filtrate from an aqueous solution or suspension of the product should be used.

Tentative Method: Preparation of Sample: (a) (Applicable to non-oily pastes.) Weigh a 3-5 gm sample in a tared 50 ml beaker. Wash with warm water through a filter into a 500 ml iodine flask.

(b) (Applicable to oil-in-water emulsions.) Transfer a 4-10 gm sample to a 200 ml volumetric flask. Add 100 ml of water, shake until no lumps remain, make to volume, and filter. Reject the first 20 ml of the filtrate, and transfer 100 ml of the clear portion to a 500 ml iodine flask.

Determination: Add 0.1 *N* HCl to the clear liquid until it is slightly acid to litmus. Quickly stopper, shake vigorously, then seal the neck of the flask with several ml of 0.1 *N* iodine. Gently open the stopper and allow the iodine to enter the flask. Wash the stopper and neck of the flask with water. Add starch solution and continue the titration with 0.1 *N* iodine.

1 ml of 0.1 *N* iodine = 0.018423 gm of calcium thioglycollate $3H_2O$.

C-434—THIOSULFATE AND SULFITE, DETERMINATION OF MIXTURES OF

*(K. G. A. Pankhurst, Chem. and Ind. **61**, 74, 1942)*

Of the methods which have been proposed for the determination of thiosulfate and of sulfite in a mixture of the two, the simplest is the iodometric determination of both radicals and then, after removal of the sulfite by precipitation, the thiosulfate separately. The strontium salts have been used for this purpose, and not the barium salts on account of the small difference of their solubilities. The author finds that barium chloride will effect a satisfactory separation provided the solution is adjusted to about pH 8.6 with sodium bicarbonate. This method has been applied to the analysis of photographic fixing solutions and found to give satisfactory results. *(Thru Quart. J. Pharm. and Pharmacol. **15**, 172, 1942.)*

C-435—THIOUREA, DETERMINATION OF BY TITRATION

*(St. Skramovsky, Casopis Ceskoslov. Lekarnictva **21**, 1-4, 1941; Chem. Zentr. 1941, II, 379-80; Thru C. A. **38**, 2288, 1944)*

Tests of different methods for determining thiourea showed the iodometric method to be the most reliable. The iodometric method depends on the oxidation of sulfur in thiourea to H_2SO_4 according to the following equation:

$$CS(NH_2)_2+4I_2+5H_2O = CO{-}(NH_2)_2+8HI+H_2SO_4$$

There is some formation of finely divided sulfur:

$CS(NH_2)_2+I_2+H_2O = CO(NH_2)_2+2HI+S$ when iodine solution is added in limited quantity to a weakly basic solution of the thiourea. The procedure recommended is the following: To a solution containing about 0.02 gm of the thiourea add 25 ml of 0.1 *N* I solution and 5-10 ml of 10 percent KOH solution. Let stand for at least 10 minutes, make the solution acidic by adding 5 to 10 ml of 12.5 percent HCl and titrate the excess I with 0.1 *N* Na_2S_2O solution.

C-436—THIOUREA

Make a 10 percent solution and add alkaline hypochlorite. If thiourea is present, nitrogen, carbon dioxide and sulfur dioxide are liberated. With cold, aqueous potassium permanganate solution, thiourea is oxidized to urea.

When heated with alkali or acids, thiourea hydrolyzes to carbon dioxide, ammonia and hydrogen sulfide which may be detected by lead acetate test paper. Silver, mercuric and lead acids at ordinary temperatures liberate hydrogen sulfide from thiourea which can be detected with lead acetate test paper.

Heat the drying substance to about 180° C for a few minutes and test for thiocyanate. Thiourea at this temperature yields ammonium thiocyanate which will produce a blood red coloration with ferric salts.

C-437—TIN

(U.S.P.)

When metallic zinc is placed in a solution of a salt of tin acidified with hydrochloric acid, the tin is precipitated in metallic form. When dissolved in hydrochloric acid, tin produces a white or gray precipitate with mercury bichloride T.S.

Stannic-solutions of stannic compounds yield with hydrogen sulfide a yellow precipitate, insoluble in diluted hydrochloric acid but soluble in colorless solutions of alkali sulfides.

Stannous-solutions of stannous salts yield with mercury bichloride T.S. a white or gray precipitate, and with hydrogen sulfide, a brownish black precipitate.

C-438—TITANIUM, DETECTION OF

*(O. K. Dobrolyubskii, J. Applied Chem. (USSR), **11**, 123, 1938)*

Dissolve the material in 6*N* hydrochloric acid, add 3 or 4 drops of a 0.025 percent methylene blue solution and a piece of zinc. If titanium is present, the solution will be decolorized within 4 minutes. Reaction is very sensitive and can be used in presence of iron, chromium, manganese and other ions. A blank test should also be run to determine rate of decolorization. *(Thru C. A.)*

C-439—TITANIUM DIOXIDE

Fuse a small portion with potassium pyrosulfate, resulting in a $Ti(SO_4)_2$, which is soluble. Another method is to fuse with sodium carbonate. In either case, dissolve the melt in 6 *N* HCl.

When hydrogen peroxide is added to a solution of titanium sulfate as from above, it turns orange-red in color, but if the amount of titanium is low, the color may be yellow more than orange.

For a quantitative analysis, weigh the sample, fuse as above, dissolve in about 150 cc water and precipitate completely with ammonium hydroxide making the solution faintly alkaline. Add 10 gm of ammonium acetate and 10 cc glacial acetic acid. Boil 15 minutes, filter, wash filter paper with dilute acetic acid, dry filter paper and ignite. Weigh residue as titanium dioxide.

C-440—TITANIUM, TEST FOR—DOBROLYUBSKII

(Merck Index)

To the solution of the sample in 6 *N* HCl add 3-4 drops of 0.025 percent methylene blue solution and a piece of zinc. If titanium is present, the solution will become decolorized within 4 minutes. Ferrous, uranyl and manganous ions do not interfere. As little as 0.00005 mg titanium can be detected in a drop of solution. A blank test should be run with the methylene blue and zinc to establish the rate of decolorization in absence of titanium.

C-441—TITANIUM AND ALUMINUM WITH 8-HYDROXYQUINOLINE SEPARATION AND DETERMINATION OF

(A. Claassen and J. Visser, Rec. trav. chim. ***60,*** *715-27, 1941)*

Berg's directions *(C. A.* ***24,*** *4479)* for precipitating titanium with oxine do not always give complete precipitation. If tartaric acid is present, it is necessary to add a large excess of $(NH_4)_2SO_4$, to heat the solution to boiling and then keep it on a steam bath for 1 or 2 hours. Not more than 1 gm of tartaric acid should be present, and the pH should be at least 5.2. In citric acid solutions, however, the $(NH_4)_2SO_4$ is unnecessary. Gravimetric results are usually a little high because the precipitate is hard to wash. A titrimetric procedure is described which gives results for titanium within 0.2 mg of the truth. Titanium can be separated from aluminum in oxalic acid solution at pH 5.6-6.5, but the results are unsatisfactory in solutions of malonic acid. *(Thru C. A.* ***37,*** *1097-8, 1943.)*

C-442—TITANIUM STEARATE

The melting point of titanium stearate is 55-70° C. The ash is 17.9 percent. Titanium stearate is partly soluble in non-polar hydrocarbons.

C-443—TITER

(A.O.C.S.)

Standard Thermometer. The thermometer is graduated at zero and in tenth degrees from 10° C to 65° C, and has an auxiliary reservoir at the upper end. The 10-degree mark is about 3 or 4 cm above the bulb, the length of the thermometer being about 37 cm over all. The thermometer has been annealed for 75 hours at 450° C and the bulb is of Jena normal 16 inch glass, or its equivalent, moderately thin, so that the thermometer will be quick-acting. The bulb is about 3 cm long and 6 mm in diameter. The stem of the thermometer is 6 mm in diameter and made of the best thermometer tubing, with scale etched on the stem, the graduation being distinct but quite fine. The thermometer must be certified by the U. S. Bureau of Standards.

Standard Thermometer for Samples of High Titer. For the determination of titer on samples having titers above 55° C the standard thermometer shall be similar to that just described but graduated from 30° to 85° C.

Glycerol-Caustic Solution. Dissolve 250 gm of potassium hydroxide in 1000 cc of dynamite glycerin with the aid of heat.

Determination. Heat 80 cc of the glycerol-caustic solution to 150° C and add 50 gm of the melted fat. Stir the mixture well and continue heating until the melt is homogeneous, at no time allowing the temperature to exceed 150° C. Allow to cool somewhat and carefully add 50 cc of 30 percent sulfuric acid. Add hot water and heat until the fatty acids separate out perfectly clear. Draw off the acid water and wash the fatty acids with hot water until free from mineral acid, then filter and heat to 130° C as rapidly as possible while stirring. Transfer the fatty acids, when cooled somewhat, to a 2.5 × 10-mm (1 × 4-inch) titer tube, placed in a 450-cc (16-ounce) salt-mouth bottle of clear glass, fitted with a cork that is perforated so as to hold the tube rigidly when in position. Suspend the titer thermometer so that it can be used as a stirrer and stir the fatty acids slowly (about 100 revolutions per minute) until the mercury remains stationary for 30 seconds. Allow the thermometer to hang quietly with the bulb in the center of the tube and report the highest point to which the mercury rises as the titer of the fatty acids.

The titer should be made at about 20° C for all fats having a titer above 30° C and at 10° C below the titer for all other fats. Any convenient means may be used for obtaining a temperature of 10° C below the titer of the various fats. The Committee recommends first of all a chill room for this purpose; second, an artificially chilled small chamber with glass window; third, immersion of the salt-mouth bottle in water or other liquid of the desired temperature.

Caustic soda cannot be substituted for caustic potash in the glycerol method. This method is quick and satisfactory. If an alternate method of preparing the fatty acids is desired the following may be used: Saponify 50 gm of fat with 60 cc of a solution of 2 parts of methanol to 1 part of 50 percent sodium hydroxide. Dry, pulverize, and dissolve the soap in 1000 cc of water in a porcelain dish and then decompose with 25 cc of 75 percent sulfuric acid. Boil the fatty acids until clear oil is formed and then collect and settle in a 150-cc beaker and filter into a 50-cc beaker. Heat to 130° C as rapidly as possible with stirring, and transfer, after cooling somewhat, to the usual 1- by 4-inch (2.5-mm x 10-mm) titer tube. The method of taking the titer, including handling the thermometer, is the same as that described in the standard method.

C-444—TOLU AND PERU BALSAMS, REACTION FOR—DIETERICH

(Merck Index)

Add concentrated H_2SO_4 drop by drop to a boiling solution of 0.1 gm tolu balsam in 5 cc glacial acetic acid. An immediate blue-violet color is produced. Peru balsam sim-

ilarly treated gives a greenish-violet color and then a dirty brown color.

C-445—GUM TRAGACANTH

(U.S.P.)

Add 1 gm of tragacanth to 50 cc of distilled water: it swells and forms a smooth nearly uniform, stiff opalescent mucilage free from cellular fragments.

Karaya Gum: Boil 1 gm of tragacanth with 20 cc of distilled water until a mucilage is formed, then add 5 cc of hydrochloric acid, and again boil the mixture for 5 minutes: no pink or red color is developed.

C-446—TRAGACANTH, VOLATILE ACIDITY OF—TENTATIVE

(A.O.A.C.)

The quantity of volatile (acetic) acidity developed in the acid hydrolysis of gum tragacanth (Astragalus gummifer Lab.) affords a valuable index of purity of this commodity when compared with results obtained by similar treatment of so-called "Indian gum" (Cochlospermum gossypium D.C. and Sterculia urens Roxb).

Treat 1 gm of whole or powdered sample in 700 ml round-bottomed, long-necked flask in the cold with 100 ml of H_2O and 5 ml of H_3PO_4 for several hours, or until the gum is completely swollen. Boil gently for 2 hours under reflux condenser. A very small quantity of cellulose substance will remain undissolved. Tragacanth yields a practically colorless solution. Indian gum gives a pink or rose solution. This reaction may be used as a preliminary test for detection of Indian gum.

Distill the hydrolyzed product with steam, using a scrubber to connect distillation flask with condenser. Continue distillation until distillate amounts to 600 ml, and the acid residue to about 20 ml. To avoid scorching of residue do not permit concentration of contents of distilling flask to less than 20 ml. Titrate distillate with 0.1 *N* NaOH solution, using 10 drops of phenolphthalein indicator. Correct result by blank determination and express as "volatile acidity" the number of ml of 0.1 *N* NaOH solution required to neutralize the volatile (acetic) acid obtained.

TRICALCIUM PHOSPHATE

See Calcium Phosphate C-108

C-447—TRIETHANOLAMINE

(Bull. Natl. Form. Comm. 13, 30, 1945)

Triethanolamine is a colorless to pale yellow, viscous, hygroscopic liquid having a slight ammoniacal odor.

The specific gravity of triethanolamine is not less than 1.124 and not more than 1.130 at 25°.

The refractive index of triethanolamine is not less than 1.480 and not more than 1.485 at 20°, P—100.

Identification: A: To 1 cc of triethanolamine add 0.1 cc of copper sulfate T.S.: a deep blue color is produced. Add 5 cc of sodium hydroxide T.S. and concentrate to one-third of the original volume by boiling. The blue color remains.

B: To 1 cc of triethanolamine, add 0.3 cc of cobalt chloride T.S.: a carmine-red color is produced.

C: Heat 1 cc of triethanolamine gently in a test tube. The vapors turn moistened litmus paper blue.

Limit of alkalinity: Transfer completely about 2 gm of triethanolamine, accurately weighed, to a 300-cc Erlenmeyer flask. Add 75 cc of water and 2 drops of methyl red T.S. and titrate with 1 *N* hydrochloric acid. For each gm of triethanolamine taken, not less than 6.7 cc and not more than 7.8 cc of 1 *N* hydrochloric acid is consumed.

Substances reacting with periodate: Weigh accurately about 1 gm of triethanolamine, transfer to a 100-cc volumetric flask and add sufficient distilled water to make 100 cc. After mixing well, transfer exactly 10 cc of the resulting solution into a 300-cc Erlenmeyer flask and add 1 drop of methyl red T.S. and neutralize with 0.1 *N* hydrochloric acid. Add 10 cc of 0.1 *N* periodic acid and 30 cc of distilled water, swirl, and let stand for 1 hour. Add 10 cc of a saturated solution of sodium bicarbonate followed by 25 cc of 0.1 *N* sodium arsenite and 1 cc of an aqueous solution of potassium iodide (1 in 20). Add sufficient solid sodium bicarbonate so that at the end of the determination there will be several gm of sodium bicarbonate remaining undissolved, and titrate with 0.1 *N* iodine using starch T.S. as the indicator. Perform a blank determination using the same quantities of reagents omitting the triethanolamine. Subtract the number cc of 0.1 *N* iodine required for the blank from the number of cc required for the sample. No more than 6.5 cc of 0.1 *N* iodine is required for each 0.1000 gm of the sample used in the test.

(Chapter IV continues in subsequent issue.)

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